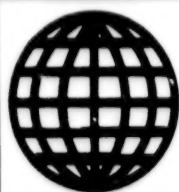


JPRS-TEN-92-007  
15 APRIL 1992



**FOREIGN  
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## ***JPRS Report***

# **Environmental Issues**

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# Environmental Issues

JPRS-TEN-92-007

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## CITES Conference Held in Tokyo

### Opening Session, Agenda

OW0203040392 Tokyo KYODO in English 0257 GMT  
2 Mar 92

[Text] Kyoto, March 2 (KYODO)—More than 1,300 delegates from 113 member countries of the Convention on International Trade in Endangered Species (CITES) on Monday began almost two weeks of deliberations at the eighth CITES conference in Kyoto.

In his opening address to delegates at the opening ceremony at the Kyoto International Conference Hall, Japan's Parliamentary Vice Foreign Minister Koji Kakizawa said that since the creation of life on the planet, human beings have witnessed the extinction of "countless species of fauna and flora."

"In 1986, there were more than 10 million species of wildlife, of which, it is estimated 3,000 fauna and 16,000 flora are now threatened with extinction," Kakizawa said.

Kakizawa called on all CITES member countries to observe the spirit of CITES regulations.

"One quite often hears of people returning from abroad having souvenirs such as handbags or belts which they bought overseas confiscated by customs," Kakizawa said.

"This, I believe, would not happen if each member of the public were well informed of the object and regulations of the convention," he said.

CITES Standing Committee Chairman Matthew Matemba called on the conference to join "against greedy exploitation" of the world's rare fauna and flora for international trade.

Matemba said the agenda at Kyoto will again include the "controversial issue" surrounding trade in ivory from the African elephant. Such ivory trade was banned by delegates at the previous CITES conference in Lausanne, Switzerland.

"The concern for the African elephant is a concern of all of us, aside from ideology," Matemba said. "Nobody wants to see the jumbos disappear from the plains of Africa."

About 300 members of Japanese fishing cooperatives and local operators of shops providing the Japanese raw fish delicacy sushi picketed the entrance to the conference hall early Monday as delegates arrived for the opening session.

They were protesting a Swedish delegation proposal at the conference which called for a complete ban on the harvesting of west Atlantic bluefin tuna.

Sweden and several other nongovernmental organizations, including the World Wide Fund for Nature

(WWF), claim that bluefin tuna in the west Atlantic are threatened with extinction but Japanese fishing interests say this claim is based on outdated and flawed data.

A spokesman for the Swedish delegation said the delegation will meet representatives of the Japanese Government's conference delegation Monday and Tuesday to hear the Japanese case regarding bluefin tuna but he said Sweden has no intention of withdrawing its proposal.

It was not known when the issue of bluefin tuna will be taken up at the conference. Delegates were scheduled to formally vote on the conference agenda Monday afternoon.

Other issues likely to stimulate heated debate during the conference are a proposal by several southern African countries which would permit a resumption in the international trade in ivory products and a list of 135 infringements of CITES rules by CITES member countries.

The list was prepared by the CITES Secretariat and includes reference to such infringements as the import of 10,000 tons of olive ridley sea turtle skins into Japan from Panama in 1990.

The CITES Secretariat document claims Panama had no knowledge of the export of the skins and did not issue an export permit. The document also says the Panamanian Government confirmed that the exporting company was "fictitious."

The skins are used in Japan for making handbags and although trade in the skins is banned under CITES, Japan made its import of the species legal using a reservation allowed under CITES rules.

### UN Environment Chief Views GATT Threat to Wildlife

OW0403183992 Tokyo KYODO in English 0812 GMT  
4 Mar 92

[By Ian McArthur]

[Text] Kyoto, March 4 (KYODO)—Liberalization of trade under the General Agreement on Tariffs and Trade (GATT) could threaten some species of the world's wild fauna and flora, the executive director of the United Nations Environment Program, Dr. Mostafa Tolba, said Wednesday.

Addressing the Eighth Conference of member nations of the Convention on International Trade in Endangered Species (CITES) in Kyoto, Tolba warned that trade liberalization should not be allowed to compromise efforts to improve the environment and its natural resources.

Tolba said a GATT ruling in 1990 that member states cannot use their own national environmental standards as a rationale for restricting imports from another state

set a precedent which could threaten the future of controlled trade in wild fauna and flora.

"The work of CITES must not be swept away in the name of free trade," Tloba said.

"Free trade increases consumption, that is true. But to argue that increased consumption has been good for the environment is difficult to accept," he said.

The issue is a key one at the CITES conference, which is to consider a proposal from four southern African states for a rewriting of CITES rules to allow a resumption in the international ivory trade.

The four countries are arguing that they should be allowed to benefit commercially from the sale of their elephant products to countries which are willing to import them.

Delegates from the four countries have argued at the conference that rich consumer countries who are CITES members should not be allowed to dictate to the poorer nations over how they control their wildlife resources.

Tolba told the conference that differences in interpreting CITES rules between poorer developing countries and richer developed countries are placing strains on CITES.

"CITES is under threat," he said. "It is an irony—though not a very funny one—that CITES should itself be an endangered species."

"The poor nations of the world want to see a stronger and more effective partnership between environment and development," Tolba said.

"There are complaints—loud complaints—from a number of developing countries, that the very rich are more interested in making the Third World into a natural history museum than they are in filling the bellies of its people," he added.

Tolba said it will be the task of delegates at the conference to decide whether the future role of CITES should be to preserve species or allow their utilization for development.

The CITES conference began on Monday at the Kyoto International Conference Center and finishes on March 13.

#### **Prince Philip Calls for Greater Governmental Involvement**

*OW0403184692 Tokyo KYODO in English 0928 GMT 4 Mar 92*

[By Ian McArthur]

[Text] Kyoto, March 4 (KYODO)—Britain's Prince Philip called on countries Wednesday to devote as much of their resources to protecting the world's endangered wildlife and plants as they do to fighting trade in illicit drugs.

In an address to the Eighth Conference of member nations of the Convention on International Trade in Endangered Species (CITES) in Kyoto, Prince Philip said he believes the trade in endangered species deserves as much attention from governments as the drug trade.

"Many people seem to know about the war against the drug barons and the dirty money that flows from the business," Prince Philip said.

But the prince said the trade in endangered species is just as much a threat because the resultant money finds its way into "corruption and violence."

"The control of poaching and smuggling may not be the most glamorous in the battle to promote biodiversity and the protection of endangered species, but it is important," he said.

"These people are criminals and can be single-minded and extremely violent in the pursuit of their interests."

"CITES must get its tactics right. Somehow or other CITES has got to be pushed into the mainstream of government business."

Prince Philip, who serves as international president of the World Wide Fund for Nature (WWF), also called on conservationists to devote their attention to less "glamorous" species of fauna and flora.

He said WWF used the Chinese panda, a threatened animal, as its symbol, but China has many other animals and plants also in danger of extinction.

"Endangered plant species are hardly given any attention whatsoever," he said. "In most cases, the trade continues because of totally inadequate information about threatened populations."

The prince said the Asian elephant is another species which, although its numbers are being depleted, has not received as much attention as the better-known African elephant.

Earlier, the prince told a press conference at the Kyoto International Conference Center a resumption in the global trade in ivory should only be allowed if income from the trade is used to finance the management of African elephant herds.

But he said present African elephant population levels are still lower than appropriate.

Four southern African countries are proposing to the conference that it revise its rules to permit a resumption in the ivory trade.

#### **Delegates Discuss Infractions of Endangered Species Rules**

*OW0403182792 Tokyo KYODO in English 0331 GMT 4 Mar 92*

[By Ian MacArthur]

[Text] Kyoto, March 4 (KYODO)—Delegates to the Eighth Conference of member countries of the Convention on International Trade in Endangered Species (CITES) discussed a list of 135 infractions of CITES rules Wednesday.

The list, compiled between June 1989 and October 1991, included such infringements as the use of false export permits for shipments of the fish species Asian bonytongue from Indonesia to Japan, the cross-border movement of illegally obtained circus animals in Europe, and the smuggling of ivory from Hong Kong to France.

CITES lists the Asian bonytongue as suitable for limited export under a quota system, but a spokesman for Traffic International, a British-based organization which monitors the illegal wildlife trade, called at the conference for the placing of a ban on export of Asian bonytongue because of repeated export permit issuing irregularities in Indonesia.

Several delegates from African countries criticized developed countries for their role in encouraging infractions of CITES rules.

A Nigerian delegate said the 89-page list of infractions contained frequent mention of Nigeria's role in the illegal export of banned or controlled species.

"I feel like hiding under the table," he said. "But most of these things are encouraged by the end users. Poachers act for developed countries. It is unfair."

A United States delegate said animal conservation efforts will need more funds in the future because poachers and trappers are becoming more sophisticated around the world.

He said many countries lack legislative enforcement to stop the world's illegal traffic in fauna and flora.

"What we have to do is start from this and go forward to increase our efforts in the enforcement of the convention," he said. "CITES cannot be implemented if the parties do not have the legislation."

A Liberian delegate called on CITES member countries not to recognize current export permits attached to wildlife from his country because many of the permits were stolen during the civil war in his country and may have found their way into the hands of smugglers.

#### **Conference Fails To Satisfy Third World Members**

*OW1303065292 Tokyo KYODO in English 0629 GMT 13 Mar 92*

["CITES News Analysis" by Ian McArthur: "Endangered Species Pact To Allow Farming of Wildlife"]

[Text] Kyoto, March 13 (KYODO)—The world's main forum for protecting endangered species of flora and fauna risks becoming an endangered species itself.

The two weeks of debate by member nations of the Convention on International Trade in Endangered Species (CITES) which ended in Kyoto on Friday have failed to satisfy key Third World members.

The participants at the March 2-13 conference reviewed the status of a widening range of endangered species from leopards and African elephants to mahogany and venus fly-traps.

The conference agreed to ban or maintain bans on all trade for a long list of endangered species, including animals such as the African elephant, all rhinos and toucans, and the Indian hornbill.

Despite the work toward protecting wildlife from poachers and habitat destruction, the conference left some Third World members dissatisfied with the assumptions underlying the concept of conservation.

The roots of this dissatisfaction are in the evolution of CITES, which came into force in 1975 largely at the instigation of developed countries, the main consumers of fauna and flora from developing countries.

CITES now has 114 member countries, many of them tropical and subtropical countries which are home to the majority of wild species CITES aims to protect.

A CITES report on violations of its regulations shows a "north-south" pattern to the world's trade in endangered species.

Among countries named for violations are Bolivia, Indonesia, Nigeria, Paraguay, the Philippines, Singapore and Thailand.

Except for Singapore, which is regarded a major point of transit for smuggled birds and primates, all are rich in wildlife and exotic plants, which are in demand in wealthier north countries.

Many of the problems they face in controlling smuggling are exacerbated by geography, small budgets and corruption on a scale that matches the international drug trade.

Four African countries which unsuccessfully sought a resumption in the elephant ivory trade, spoke for many Third World countries when they argued that managed trade in wild fauna and flora need not conflict with the concept of sustainable development of a resource.

Botswana, Zimbabwe, Malawi and Namibia led the Third World case against developed countries over their complicity in the illicit endangered species trade.

Two European countries, Italy and Austria, also occur frequently on the CITES list of violators. Both are major outlets for "laundering" the illicit trade from the Third World.

At the heart of the criticism was the feeling that developed countries use a double standard in demanding that

Third World countries control smuggling and poaching and comply with the CITES bans on trade in otherwise lucrative wildlife resources.

That argument led some conference participants to accept a resolution that recognizes commercial trade may help conserve some species and help local people "when carried out at levels not detrimental to the survival of the species."

The adoption of the resolution may please African states where elephants range, but it was too late to influence decisions concerning countries which are home to potential bonanzas in wildlife and wildlife product exports.

The director general of the World Conservation Union, Martin Holdgate, said the issue is likely to become a key element at future CITES conferences.

It indicates CITES countries recognize that farming of species such as crocodiles, and perhaps even elephants and rhinos, may be permissible as an "economically competitive land use option."

As the implications of the resolution dawn on governments, it may spell the end of poaching and in its place encourage legitimate commercial farming of everything from Asian bullfrogs for French restaurants to South American crocodiles skins for Swiss watch bands.

Peter Kramer, head of the World Wide Fund for Nature (WWF) delegation to the conference, said very little income from the estimated 17 billion dollar international trade in traditional wildlife, timber and fisheries is invested in conservation.

Kramer said countries will have to reassess a current imbalance created by the flow of underpriced wildlife and wildlife products from undeveloped to developed countries.

### **OECD To Support Environment-Friendly Farm Policy**

*OW0703034892 Tokyo KYODO in English 0316 GMT 7 Mar 92*

[Text] Tokyo, March 7 (KYODO)—Members of the Organization for Economic Cooperation and Development (OECD) are likely to support an agricultural policy that promotes minimal degradation of the environment, Japanese Government sources said Saturday.

The 24-nation OECD's farm ministerial meeting is expected to issue a communique that includes a statement advocating a shift to an "environmental-friendly" farm policy, the sources said. The communique would be issued in a two-day agricultural ministerial conference opening in Paris on March 26, they said. The OECD farm ministerial meeting was last held 10 years ago.

The meeting has so far pushed for cuts in farm supports and for free trade of farm produce, the source said. However, the nations have chosen to reverse course on environmental issues because they could no longer ignore the role that agriculture plays in preserving land, the sources said. They added the move was also prompted by a growing awareness about global environmental issues.

U.S. Agriculture Secretary Edward Madigan and European Farm Commissioner Ray MacSharry are expected to attend the Paris meeting, the source said. Masami Tanabu, Japan's minister of agriculture, forestry, and fisheries, is making moves toward attending the conference, they said.

## MOZAMBIQUE

### Study Says Poaching Reaching 'Alarming Proportions'

MB2702155392 Maputo Radio Mozambique Network  
in Portuguese 1030 GM 27 Feb 92

[Text] A study presented at the Wildlife Protection Association's ongoing constitutional conference in Maputo has stressed the need for urgent measures to curb the indiscriminate killing of wildlife. The report reveals that poaching is assuming alarming proportions. Most poaching is done for personal enrichment purposes, which explains the killings in the Maputo game park, where 70 white rhinos have already been wiped out. It is doubtful whether even one of those animals survives.

Most poachers operate, however, in Manica, Tete, Niassa, and Cabo Delgado Provinces. They enter the country illegally, from Zimbabwe, Zambia, and Tanzania. Regarding Sofala Province, it has been learned that Mozambicans and foreign civilians and soldiers are involved in the killing of animals in the bush, for the meat and valuable trophies.

## SOUTH AFRICA

### Minister Denies Defense Force Involvement in Ivory Smuggling

MB2802092592 Johannesburg SAPA in English  
2012 GMT 27 Feb 92

[Text] Pretoria, Feb 27 (SAPA)—The South African Police [SAP] have denied any knowledge of claims made by an international conservation organisation that the South African Defence Force [SADF] has been involved in international ivory smuggling.

Minister of law and order, Hernus Kriel, said the SAP's Endangered Species Protection Unit [ESPU] would investigate any substantial information received—regardless of the alleged level of involvement.

"To date, no such evidence has been submitted nor has any concrete evidence been uncovered during the investigation."

Mr. Kriel reiterated the SAP's invitation to anyone who had any substantial evidence to submit it to South African authorities—inside the country or abroad.

The ESPU investigated 80 cases during 1991 in which 176 people were charged for being in unlawful possession of 120 elephant tusks, 2,782 blocks of ivory and 46 rhino horns.

## ZIMBABWE

### Grain Board Orders Further 108,000 Tons of Maize

MB0303193492 Johannesburg Radio RSA in English  
1100 GMT 3 Mar 92

[Text] The Zimbabwean Grain Marketing Board has announced that it has signed a contract for the delivery of 108,000 tons of maize to avert a looming famine. A spokesman said that the consignment would consist of 68,000 tons of white maize from the United States and 40,000 tons of yellow maize from South America. This brings to 308,000 tons the amount of maize the government has bought so far to counter the effects of the drought.

Observers note that for the first time in decades Zimbabweans are to be offered yellow maize which is highly unpopular in the country. Riots broke out when yellow maize was last marketed in the then Rhodesia in the 1960s because many regarded it fit only for cattle feed.

### Over 90,000 Cattle Die in Drought Over 2 Months

MB0303193592 Johannesburg Radio RSA in English  
1100 GMT 3 Mar 92

[Text] The Zimbabwean Government's chief veterinarian, Dr. Stuart Hargreaves, says more than 90,000 cattle have starved to death in the past two months in the country's worst drought this century. Dr. Hargreaves said if it did not rain soon, herds would be reduced by half.

The drought, affecting most of southern Africa, could lead to widespread famine and starvation because of poor harvests in the region's two major food producers, South Africa and Zimbabwe. Last week communal farmers complained that the Zimbabwean Cold Storage Commission was refusing to accept their cattle because of the poor condition of the animals. Zimbabwe announced last month that it had ordered 2 million tons of relief food in an attempt to prevent mass starvation.

### **Problem of Resources, Environmental Development Viewed**

92WN0160A Beijing HUANJING BAOHU  
[ENVIRONMENTAL PROTECTION] in Chinese  
No 10, Oct 91 pp 3-5

[Article by Jin Jianming [6855 7003 2494], Deputy Director of the State Environmental Protection Bureau]

[Text] Resources, environment, and development form an organic whole. When we protect the environment and the ecology, we are also protecting the resources and ensuring a stable, coordinated, and sustained growth of human society. In China, irrational development and utilization have caused severe damage to the environment and ecology, which in turn aggravated the shortage and depletion of resources and gravely endangered the economic development of society and the health and standard of living of the people. Today, we are faced with a dangerous situation in our environment and resources. This is a many-faceted problem, and its solution cannot be obtained by merely relying on the efforts of the departments in charge of the environment and resources. It takes the cooperation of many departments and the efforts at the various levels. In this article, we wish to discuss some issues related to the environment and resources by viewing them as a whole.

#### **I. New Perception Is a Prerequisite for Solving the Problems of Resources and Environment**

An important reason for the waste of resources in China is a lack of understanding for the value of the resources. For a long time, people believed that the earth's resources are boundless and may be used arbitrarily and without compensation. Many species in the biological system may not have direct value to humans, but they are vitally important for the stability and equilibrium of nature, especially for the survival and development of the biological system in nature. This intrinsic value in nature often receives no respect from people. In the past, we always advocated the vast land and rich resources of China and ignored the fact that the large population lowered the per-capita resources. Unconsciously, this has aggravated the wasteful behavior of the Chinese people. Therefore, a change of the people's perception about resources and the environment is vitally important. A new sense of value about the environment must be established. People must recognize the finiteness of the earth's resources. Not only are the minerals underground scarce, even the seemingly inexhaustible air and water are also precious resources. Also, the value of the resources determines the rules and regulations that we must strictly adhere to in the development and utilization of resources. Nothing can be used arbitrarily and without compensation.

#### **II. Improved Management Is a Strategy for Protecting the Environment and Resources**

Mismanagement is a major cause for the waste of resources and pollution of the environment. Statistics

show that 30 to 50 percent of China's pollution may be attributed to mismanagement and ignorance. Strengthening the management is, therefore, a strategic measure in resource and environmental protection. It involves the following major issues:

1. Environmental planning should be formally included in the national economic construction and social development plan.

The resources and environment are important basis for the economic development of society. The protection of the environment and resources ensures long-term sustained stability of the economy. Only when the environment plan is formally included in the economic development plan of society can the various goals of the protection plan be realized. China has made environmental protection a basic national policy, so the various economic development projects must treat environmental protection as a high priority.

2. Improve the management of resource development and utilization by adhering to the principle of equal emphasis on development and renewal.

The development and utilization of renewable resources, such as biological resources, should be based on the principle of perpetual utilization. The level of development should be limited to the ability of resource renewal, and artificial renewal and growth should be stressed. For nonrenewable resources such as minerals, there should be strict planning, and arbitrary unplanned mining should be forbidden. In the meantime, there should be a conservation effort to improve the rate of utilization, to reduce consumption, and to actively seek substitutes for nonrenewable resources. In addition, wastes should be recovered and converted into something useful.

3. Seriously implement the environment impact evaluation system, step up the management of resource development and engineering construction, and prevent damage to the ecological environment.

Environmental impact evaluation must be conducted for development and construction projects that may affect the natural environment adversely. These include mining, oil drilling, new reservoirs, electrical power stations, water projects, railroads, highways, harbors, airports, quarries, resort area development and construction projects in the vicinity of natural protection zones and scenic resort areas. There must also be effective measures to reduce the adverse impact to a minimum. Vegetation and scenic sites damaged by construction projects must be restored. China is very weak in environmental impact evaluation and damage restoration.

#### **III. Complete Resource-Environment Legislation and Strengthen the Management by Law**

Resource and environment legislation is the fundamental guarantee for effective protection of the resources and the environment. Article 9 of the constitution states that "The state shall ensure the rational

development of natural resources and the protection of endangered animals and plants. Encroachment and damage of the environment by any organization or individual is forbidden. Article 26 states that "The state shall protect and improve the living and ecological environment, prevent pollution and other public hazards." In the past 10 years, China has moved rapidly in resource-environment legislation, which has played an active role in the protection and improvement of China's resources and environment.

1. China has issued a series of laws and regulations regarding resource and environment protection.

China issued its "Environmental Protection Law of the People's Republic of China (Draft)" in 1979. Subsequently, it has passed the "Forestry Law," the "Prairie Law," the "Oceanic Environment Protection Law," the "Land Management Law," the "Mineral Resources Law," the "Water Law," the "Fishing Law," the "Wild Animal Protection Law," the "Cultural Relics Protection Law," the "Atmosphere Protection and Control Law," and the "Water Pollution Prevention and Control Law." In the meantime, the State Council has also issued a dozen or so regulations to protect the natural environment, including the "Management Regulations for Forest and Wild Animal Protection Zones," the "Regulations for Water Conservation," the "Regulations for the Protection and Breeding of Aquatic Resources," the "Tentative Regulations for the Management of Scenic and Resort Areas," and the "Regulations for Protection of Wild and Biological Medicinal Materials." A number of provinces, cities, and autonomous regions have also issued local ordinances for protecting the natural resources.

2. Problems in the legal system of resource and environment laws.

There are two problems in the legal establishment of resource and environment laws. One is that the system is incomplete and the legal responsibilities are not clearly defined; this caused difficulties in enforcing the laws. The second problem is that certain leadership cadres lack an understanding of the laws. The laws are often ignored or not enforced rigorously and uncontrolled development of the resources could not be stopped after many attempts. These problems must be overcome by perfecting the legal system of resource and environment laws and by strengthening the legal movement.

#### **IV. Step Up Science and Technology Research and Solve Resource-Environment Problems by Advancing the Technology**

Most of the technologies for resources development and utilization in China are obsolete; the equipment is old, the rate of comprehensive utilization of the resources is low, the waste level is high, and the pollution is heavy. Therefore, the strategy of solving the resources and environmental problems with advanced technology is as important as the management strategy. It should be

made an important strategic measure for resource and environmental protection in China.

1. Develop methods to make comprehensive and efficient use of the resources.

Comprehensive utilization of natural resources was first advocated by China, but the actual progress has been slow. China compares poorly with other nations in resources utilization. The rate of utilization is only 10 percent for forestry, 20 percent for water recycling, 5 percent for iron slag, and less than 15 percent for coal ash from electric power plants. A major effort is needed in the comprehensive use of resources so that more wastes can be converted into useful resources for fuller utilization. In agriculture, the rural ecological system must be actively developed; this is another important aspect of improving resource utilization rate.

2. Improve the research for substitute rare resources to ensure long-term utilization of the resources.

The substitute resource technology is an effective means for protecting the resources, especially non-renewable resources. In the meantime, efforts should be made to develop substitutes for material hazardous to the environment such as the ozone-depleting chlorofluorohydrocarbon.

3. Actively develop resource renewal and regeneration techniques.

To maintain the diversity of biological species, biological diversity techniques should be pursued actively. This includes artificial breeding and cultivation, establishing natural protection zones, and building gene banks. Ecological improvement and restoration techniques for ecologically fragile regions (such as the loess plains) should be developed. In these regions, the natural ecological environment has already suffered considerable damage and the deterioration is continuing. Without timely action, the ecological system may not be able to return to the normal cycle and greater disasters may follow.

#### **V. Establish Coordinated Technological and Economical Policies To Improve the State's Guidance on Resource and Environment Protection**

The state provides its guidance by policies; establishing a set of resource-environmental policies will play a determining role in the coordinated economic development and resource-environment protection.

1. China has already formulated a series of resource-environment protection policies, but these policies have not been seriously implemented in reality. The current environmental protection technical policies can be divided into two categories. The first category has special environmental protection policies such as the "Environmental Protection Technical Policy for Regional Development and Construction," the "Environmental Protection Technical Policy for Industry and Transportation," the "Environmental Protection Technical Policy for Urban Development," and the "Technical Policy for

Protection Rural Agricultural Environment and Natural Environment." The other category has the department environment protection technical policies, such as the "Environmental Protection Technical Policy for Steel Industry," the "Environmental Protection Technical Policy for Light Industry," and the "Environmental Protection Technical Policy for Chemical Industry." Although the policies are not yet complete, they have already played an important guidance role in the protection of the resources and the environment.

2. We should also further establish policies that are associated with the environmental protection technical policies. For example, we should formulate a resource-environment policy that includes land development tax and resources tax and establish economic policies to encourage the utilization of waste solid, waste water, and waste gas. We should also have policies that are conducive to the comprehensive environment of the resources in order to make full use of the initiatives at the state, organization, and individual levels.

#### **VI. Make a Major Effort in Educating the Public and Raise Its Awareness of Environment and Resource Protection**

The awareness of the public on resource and environment protection has a direct impact on the development of resource and environment protection. An important way to raise the public's awareness of the need for resource and environmental protection is through wide publicity and education.

1. Actively promote new concepts for environmental protection, including the concepts of ecology, resource value, and sustained development. Cultivate the environmental sense of morality that makes people proud about protecting the environment.

2. Publicize environmental protection as a fundamental national policy and advocate environmental protection as an important component in the national economic development and an important basis for social economical development.

3. Forcefully publicize the resource-environmental protection regulations to improve peoples' concepts about the laws and to promote the solid implementation of the resource-environment regulations.

#### **Evolution of China's Environmental Management System Examined**

92WN0160B Beijing HUANJING BAOHU  
[ENVIRONMENTAL PROTECTION] in Chinese  
No 10, Oct 91 pp 8-10

[Article by Lu Yucun [7120 7183 2625], Deputy Director and Secretary General of the Chinese Environmental Science Society]

[Text] The environmental protection effort in China has had a history of 18 years. In this period, we have explored ways to manage the environment in China and

gradually formed a Chinese style management philosophy. This philosophy came from practice and, in turn, guided the practice. The 18-year history may be divided into three periods.

In August 1973, China held its first national environmental protection conference and wrote the first chapter on environmental protection in Chinese history. At that time, however, our understanding of the nature, contents, and methods of environmental protection was rudimentary. Premier Zhou Enlai pointed out a specific guiding thought for China's environmental problem: China's economic construction and industrial development should not follow the old path of developed nations of the west, that is, pollute first and clean up later. Based on this guiding philosophy, a policy was established for China's environmental protection: overall planning, rational layout, comprehensive utilization, converting wastes into useful resources, relying on the public, mobilizing the masses, protecting the environment and benefiting the people. Based on this policy, the State Council proposed an approach to avoid the pollute first-clean up later scenario in its "Regulation Regarding Environmental Protection and Improvement." The State Council required that environmental measures must be designed, built, and put into use; at the same time the main body of the construction project was also designed, built, and put into use for any new construction, renovation or expansion project. This "three simultaneous" requirement became China's first management rule in environmental protection. We also borrowed from foreign experience and established and implemented the environmental impact evaluation system and the over-standard discharge find system. These formed the "old three" environmental protection rules. These three rules played an important promotional role in China's environmental management. That was the first exploratory phase of China's environmental management. In this phase, the nature and functions of environmental management were not clearly expressed. Some experiences of success were accumulated in this period, but there were also wasted efforts. If environmental management is taken to be little more than pollution treatment, then the management procedure and method will be confined narrowly to the environment. The Environmental Protection Law of the People's Republic of China (Draft) issued in 1979 put forth the principle of "he who pollutes, cleans up" and made the first changes of the backward environmental management relationship. This was a major breakthrough in China's environmental management philosophy and a new step in establishing China's current system of environmental management.

The second phase in China's environmental management was a practice exploratory phase and lasted 7 years from 1982 to 1988. This was a period of the most active ideas in environmental management and a period when the management system was gradually established. There were seven distinct changes in this period. (1) It was recognized that, under the economic conditions at that time in China, the only way to control and solve the

pollution problem was to strengthen management. The concept of treating pollution through management was explicitly proposed in the 1979 national conference on environmental protection. (2) The four major areas and 15 tasks in China's environmental management were clearly defined. (3) Environmental protection was established as a fundamental national policy of China. (4) The "synchronous development" strategy was established. That is, economic construction, urban and rural construction, and economic, social, and environmental benefits must be considered at the same time. (5) Three major policy systems based on management improvement, prevention, and polluter's responsibility for cleaning up were established. (6) Distinguished the two concepts of environmental management and environmental construction, defined the environmental protection responsibility of the management department as opposed to that of other departments. (7) Established the position and basic responsibility of the national environmental protection departments and what they are in charge of. These concepts formed an overall structure of the environmental strategy that suits the present situation in China, and became the philosophical basis of a practical and feasible environmental management system in China.

The third phase began at the Third National Environmental Protection Conference of 1989. At this conference, five new measures in environmental management were formally proposed. These were the environmental protection target responsibility system, the urban environment comprehensive treatment and quantitative evaluation system, the pollution emission permit system, the centralized pollutant control system, and the pollution treatment deadline system. Some of these systems were tentatively put into practice during the second phase and were included in the "Environmental Protection Law of the People's Republic of China." These five systems were the culmination of several years of experience in various parts of China. They addressed the new situation and new needs in improved environmental management and further solved the "how to" questions in management. It was clearly stated in the "Decisions to Further Strengthen the Environmental Protection Effort," issued by the State Council, that environmental protection was a prerequisite in promoting the status of an enterprise and in evaluating culturally advanced units. There are now nine systems. These nine management systems and measures have become the carrier for implementing China's environmental management.

Actual practice has proved that it is fitting for China to push the environmental management system. China is a developing socialist country based on the public ownership system and encompasses many different economies. Concurrent implementation of a planned economy and market modification is an important feature of the situation in China; it is also an edge that China has. To solve our environmental problem, we must make use of this edge, that is, we must make full use of the superiority of the socialist system. To promote the planned economy

of socialism, the ability of the government to manage in a unified and integrated manner must be strengthened. To manage the environment with this function of the government is another edge of China. In any case, the situation in China is characterized by a large population and a weak base. China must take full advantage of the superiority of socialism and the unified leadership of the government. In the management of the environment, the forces in the various sectors of the society should be mobilized. Pollution should be controlled and treated and the environment should be improved in a planned, organized, and systematic manner. The nine management systems were designed to improve the environmental management. It is therefore highly significant that the nine new and old environmental management systems be implemented.

Practice showed that the environmental management system has mobilized the momentum of the society for environmental protection. The results are manifested mainly in the following areas:

(1) Established the responsibility of the principal leaders of the various government levels, departments, and enterprises. Using a systematic and legal approach, solved the problem of a lack of responsibility and rights in China's environmental protection endeavor.

(2) Prompted the various sectors of the society to solve the environment problem in a coordinated manner. This approach promoted cooperation under the unified leadership of the government.

(3) Found an avenue for developing the material potential in society. This avenue helped in gathering up the scattered resources in personnel, finance, and material and helped in solving the money problem.

(4) Provided an effective means for the public to participate in monitoring the environmental protection. Made the environmental management system open to the public. Some of the practices call for comparison between cities and also rewards and fines. The evaluation results will be announced to the public to facilitate understanding and monitoring. It also created new opportunities for public participation in the environmental protection effort.

Promoting the environmental management system is a means but not a goal. By implementing the environmental management system, we wish to reach the goal of controlling pollution, preventing ecological damage, and gradually improving the environment. When the system is implemented in the local areas, it should be based on the actual situation of the local region and establish goals for that region. Particular attention should be given to the development trends in pollution control and ecological damage. Systematic, deliberate steps should be taken to improve the environmental quality of the cities and villages and to promote the treatment of sources in pollution. Regional, coordinated environmental management should be promoted, latent resources should be

explored so that development of the economy, society, and environment may proceed simultaneously for the benefit of all three.

The implementation of the environmental management system places higher demands on the environmental department. There are six distinct changes in the implementation of the old and the new environmental management system: (1) the development from point management to area management, (2) the trend from qualitative to quantitative management, (3) the change from concentrated control to total quantity control, (4) from scattered control to centralized control, (5) from management by experience toward scientific management, and (6) from purely administrative management toward integrated management based on legal, administrative, economic, and scientific considerations. These changes represent a giant step in China's environmental management effort. To accomplish these strategic transformations, the environmental protection departments must do well in carrying out their basic functions of coordination, guidance, monitor, inspect, consult, and service. This means that the departments must strengthen themselves, adopt the appropriate reform measures, formulate a complete plan, and pay attention to all the details in their management system. The internal organization must be conducive to the implementation of the management system. The current three components of management, research, and monitor in the environmental system must each assume its responsibility.

Because of the different historical background under which the current nine-point system came into existence, there are differences in the management target and activity. It is particularly important that the new six-point system be perfected. In the implementation of the nine-point system, the environmental department and local units have encountered considerable difficulties. Many colleagues have made constructive suggestions at the meeting for resolving these difficulties. In the space below, four of these suggestions are presented for public discussion.

1. First, the relationship between the old system and the new system can be gradually smoothed out by making the reform more permanent.

The new six-point management system contradicted to a certain degree the system of the "three simultaneous," the collection of pollution fine, and the evaluation of environmental impact. Examples are the conflict between concentration control and total quantity control and between scattered management and centralized management. Because of these contradictions and inconsistencies, the various level environmental protection departments must make the coordination of the old and new systems one of the important tasks. The new system must be carried out effectively while minimizing the conflicts with the old system.

2. Secondly, a system on policies and regulations must be established as quickly as possible.

Based on careful studies, the relationship between systems must be coordinated and the corresponding policies and regulations should be formulated. Only then can the systems be implemented effectively. Some of the items in the six-point system are clearly stated in the environmental protection law and regulations, others are not clearly stated. Also, some of the systems are not consistent with the policies. For example, the pollutant emission permit system is more versatile than the concentration control system and can more effectively reduce the release of pollutants. Therefore, a set of clearly stated, unified regulations should be established to facilitate the implementation of the pollutant emission permit system. These regulations should involve the distribution of pollutants, the transfer with compensation of pollutant emission targets, and the standard and policy for pollutant emission fines.

3. Thirdly, strive for breakthroughs in investment.

The implementation of any system always involves some money problems, especially new systems. It is therefore necessary to institutionalize the system and put the funding on a solid basis. The environmental protection investment system should be reformed so that funds from different sources may be pulled together and put into the unified plan.

4. Finally, strengthen the various basic tasks.

To implement the new and old nine-point systems, it requires the establishment of an entire set of supporting systems, including environmental standards, information, planning, monitoring, and technical codes. In the future, the fundamentals should be given a high priority.

In summary, we as environmental management workers are faced with a formidable task for steadily and firmly promoting and perfecting the new and old nine-point system so that their total functions fully play a role.

#### **Environmental Protection Advisory Council Established**

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[ENVIRONMENTAL PROTECTION] in Chinese  
No 10, Oct 91 p 15

[Article by Da Wei [1129 3634]]

[Text] To ensure a scientific, rational, and timely policy setting, a State Environmental Protection Advisory Council was established on 12 August and held its first meeting in Beijing. The Council consists of 16 specialists and scholars hired by the State Environmental Protection Bureau. The Council is an advanced advisory organization that provides consultation on major environmental protection policies of China.

In its first meeting, the Council studied the "Charter of the State Environmental Protection Advisory Council

(Draft)" and elected officials. Huang Hua [7806 5478] was elected Chairman. Huang is a member of the Standing Committee of the Central Advisory Council of the Chinese Communist Party and a former Minister of Foreign Affairs. He Kang [0149 1660] was elected Vice Chairman of the Council. He is a Vice Minister of the State Science and Technology Commission and was formerly a Minister of the Agricultural Ministry.

After the establishment of the Council, it will meet one to two times a year to discuss major policy matters regarding the nation's environmental protection and make recommendations. At the request of the State Environmental Protection Bureau, the Council will conduct inspection and investigation. When needed, the Council will call unscheduled meetings or make recommendations and suggestions to the State Environmental Protection Bureau in writing.

The 16 founding members of the Council are (in order of stroke number of last name): Fang Keding [2455 0344 1353], Vice Chairman of the State Institution Organization Commission; Professor Jing Wenyong [0064 2429 8673], Chairman of the Environmental Engineering Department at Qinghua University; Professor Li Yining [0632 0110 1337], Economic Management Department of Beijing University; Professor He Kang, Vice Minister of the State Scientific and Technological Commission and formerly Agricultural Minister; Li Deping [2621 1795 1627], honorary Director of the China Radiation Protection Institute; Li Jinchang [2621 6855 2490], Deputy Director of the Chinese Environmental Strategic Research Center; Professor Chen Changdu [7115 2490 4648], Director of the Environmental Science Center of Beijing University; Chen Dongsheng [7115 2767 3932], Research Fellow of the Industrial Economics Research Institute of the Chinese Academy of Social Sciences; Yu Chaoran [0151 6389 3544], Deputy Director of the China Environmental News; Professor Gu Guowei [7357 0948 4850], Dean of the Environmental Engineering College in Shanghai Tongji University; Professor Tang Xiaoyan [0781 1321 3508], Director of the Environmental Science Center of Beijing University; Tao Shilu [7118 6108 7637], Scientist and Academy Member, Atmospheric Physics Institute, Chinese Academy of Sciences; Huang Hua, member of the Standing Committee of the Central Advisory Council of the Chinese Communist Party and former Foreign Minister; Dong Fuqi [5516 6534 4359], Scientist, Economics Institute of the Chinese Academy of Social Sciences; Dong Zhiyong [5516 1807 0516], Senior Engineer and Chairman of the Science and Technology Commission, Ministry of Agriculture (former Deputy Minister of the Agriculture Ministry); and Professor Han Depei [7281 1795 1014], Honorary Dean of the Wuhan University Law School.

#### **Enforcement Measures for Environmental Protection Implemented**

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No 10, Oct 91 pp 25-27

[Article by the Development Monitor Office of the State Environmental Protection Bureau]

[Text] In December 1990, the State Council issued a "Decision Regarding Further Enhancement of Environmental Effort" (Document Number Guofa-65-1990). In this decision, the State Council explicitly called for a stronger environmental monitoring team at the basic level. In order to implement the State Council's decision and to solve the long-standing problem of inadequate enforcement of the environmental protection laws, the State Environmental Protection Agency conducted extensive studies and investigation and consolidated the environmental monitoring test points in some provinces and municipalities in China. The Bureau has improved the enforcement team at the basic level and established the "Tentative Regulations for Environmental Monitoring in China." These actions by the Bureau have created a favorable condition for building up an environmental monitoring and enforcement team.

#### **I. Organization of Environmental Protection Enforcement Team by State's General Supervision and Management Departments and Views of the Personnel and Finance Ministries**

1. General supervision and management departments of the State has established a basic level law enforcement team commensurate with its supervision and management tasks.

In the industrial and commercial departments, China has 360,000 management and administrative personnel. In addition to the Industry and Commerce Bureaus under administrative units of provinces, municipalities (or regions), and counties, there are also 15,000 Industry and Commerce Bureaus under economic units of cities and counties to carry out the actual law enforcement. The total number of industrial and commercial law enforcement personnel in China at the base level exceeds 200,000, which is more than 60 percent of all workers in the industry and commerce system in China. In the tax departments, there are 400,000 tax workers in China. In addition to the tax bureaus in provincial, municipal (regional) and county governments, there are also an additional 20,000 tax offices. The number of base level tax collection management personnel accounts for more than 80 percent of the total number of tax workers in China. According to the data of the Public Security Department, there are 100,000 traffic law enforcers in China. The Public Security Traffic Management Bureau of Beijing has 5,000 workers, and more than 80 percent of them are first line enforcers.

2. The development of all the law enforcement departments has gone through the process of being limited by administrative systems and funding and the transformation to thriving development under a business system and independent fund.

To our knowledge, 270,000 workers in the industrial and commercial departments (75 percent of the 360,000 total) are under the business system. In tax departments, more than 90 percent of the 400,000 workers are under the business system. In traffic law enforcement, more than 50 percent of the 100,000 workers are in the

business system. The front-line law enforcement personnel in the commerce and tax departments enjoyed rapid development after the Ministry of Finance officially put them under the business system in 1978. The current front-line law enforcement team in the various departments has increased almost 200 percent since 1978. Under a general shortage of funding, the new personnel, under the business system, rely on supplemental industrial and commerce departments which rely on the "market management fee;" the tax departments rely on the "tax collection retained percentage;" and the traffic management personnel rely on the "road maintenance fee" and the "city maintenance fee." In 1986, the State Council decided to increase the number of workers in industry and commerce departments by 80,000 and tax workers by 100,000. The regulation required the financial departments to fund these increases in personnel, but in practice most of these personnel are funded by the income of their own departments because the finance departments did not have the money.

3. The establishment of the front-line law enforcement team became the organizational guarantee for strict enforcement of the laws and also enhanced the management function of the various departments.

The duty of the front-line law enforcement team and the supervision of the various bureaus are the two functions of the government administration. The former is microscopic and specific and the latter is macroscopic and overseeing. The baseline industry and commerce offices are responsible for the collection of market management fees, the prosecution of unlicensed or illegal businesses, trademark infringement, and counterfeit products. The front-line offices take the load of the law enforcement so that the bureaus may devote more time and effort to the formulation of administrative regulations and local codes, evaluation and issuance of operating licenses, trademark and registration management, market and trade development and arbitration of business and commercial contracts. This division of work ensures the effective implementation of the state's industrial and commercial management regulations. Improvement of the front-line tax law enforcement helps to perfect the tax system and to develop new tax revenues. According to the traffic management departments in public security, a strengthened front-line law enforcement team means greater efficiency and better ability to anticipate the future. This would allow us to devote more effort to perfect our traffic regulations, modernize our traffic management, and raise society's awareness of our traffic management effort.

4. As the policy system reform progresses in China, all the law enforcement workers face the problem of how to become part of the public service system and how to continue to strengthen and perfect the system.

According to colleagues in the test-point task force of the State's public service system, business units in China may be divided into three categories. The first kind is

purely administrative, the second kind is semi-administrative, and the third kind is purely business. To separate administration and business, the administrative functions of the second kind units will be separated out, combined with the first kind of administrative units, and put under a government agency. There will be, of course, a transitional measure, but we shall try to solve this problem first in the current public service test-points.

One of the reasons for doing so is to control the organizational expansion. Comrades in the test-point task force also believe that the front-line workers in tax, commercial, and traffic law enforcement are exercising the supervisory and managerial role of the government and rightly belong to the first kind discussed above. In the discussion of the reform test-point proposal for public servants in tax departments, the state tax agency has already raised the issue that the front-line tax enforcement workers be included in the ranks of the public service system. Comrades in the public service test-point task force of the personnel department believe that, based on the function and duty of environmental monitoring workers, their work is of the same nature as that of front-line industry, commerce and tax departments.

Ministry of Finance workers believe that front-line law enforcement personnel in industry, commerce, tax, traffic and environmental protection are exercising the supervision and management functions of the government and should, therefore, be included in the public service system. Premier Li Pang has issued a directive that our Finance Ministry should consent to the funding of environmental monitors with the pollution fee collected. Business development requires a large number of law enforcement offices and personnel at the basic level. Because of the limited financial resources in the finance departments in China and the practice of rigorously controlling the administrative line items and funding, the so-called "purely administrative" business units emerged on the scene. Now that all these workers will be included under the administrative system, it may be beyond the ability of the finance departments to absorb them. In the current public service reform test-point, the entire front-line law enforcement team is included in the public service system. The finance department may take part of the original money of these departments to supplement the new administrative costs.

## **II. The Necessity and Feasibility of Establishing an Environmental Monitoring Team**

Premier Li Pang has repeatedly pointed out that environment management needs a team: without this team, environmental management will be empty rhetoric. In today's situation, it is both essential and feasible to establish a team to enforce environmental protection laws.

1. The emphasis of today's environmental protection in China should be on industrial pollution and treatment in the cities.

Improving the monitoring and management of industrial wastes is a formidable task. In China, there are hundreds of thousands of industrial enterprises and a large number of industrial pollution sources in suburban areas. It is absolutely necessary that an environmental monitor and enforcement team be established to conduct regular on-site inspection of pollutant emission, to collect pollution fines, and to arbitrate conflicts caused by pollution incidents.

2. Director Qu Geping [2575 2796 1627] has said repeatedly that the legal system for China's environmental protection effort has already been established, although it requires further refinement. The key problem today is not that there are no laws to follow, it is that the laws are not rigorously enforced. What he said is completely consistent with the present situation in China. An important cause of the problem is lack of an efficient law enforcement team at the basic level. Regarding this point, there is agreement among the various level environmental protection departments. The establishment of an environmental law enforcement team is indeed a pressing obligation at this time.

3. Other monitor and management departments of the state have all established professional law enforcement teams to meet their needs in enforcing the laws. Examples are traffic management, security monitors in labor departments, food and sanitation monitors in sanitation departments, tax supervisors in tax departments, land monitors in land management, price inspectors in price departments, and forest police in forestry departments. It is both natural and essential for the environmental protection department to establish a law enforcement team.

4. In more than a decade of practice in assessing pollution and emission fines, a team of monitors has emerged and enjoyed rapid growth. The team is specialized in pollution management and monitoring and uses collecting pollution fines as their main weapon. Statistics showed that as of December 1990, there were more than 10,000 monitors in 1008 monitoring organizations. Most of these organizations are business units and their main financial source is pollution fines. Although this team can use further improvement and refinement, it has developed into the main force on the front-line of China's environmental monitoring and has contributed to China's environmental protection cause. It has also formed the basis for building an environmental law enforcement team under the new situation in China.

5. Based on the principle of "leaner, unified, efficient" in organizational reforms, administrative organizations and budgets were reduced everywhere. In environmental protection departments, personnel and budget are ruefully inadequate. A feasible approach is to apply for a larger business budget and temporarily fund the personnel by pollution fines. It is an effective way to quickly establish an environmental law enforcement team. In December 1990, the total number of workers in China's environmental protection system was about 66,000, out

of which 17,500 were funded through pollution fines. These included personnel in environmental management, environmental monitoring, and pollution fine assessors and accounted for 26.65 percent of the total number of environmental workers. This practice is consistent with the current policy and the problem may be gradually solved in the public service system reform.

### **III. Seek the Opportunity To Establish a National Environmental Monitoring Team**

#### **1. Present status and problems in China's environmental law enforcement team.**

Based on the consensus regarding the need to establish an environmental law enforcement team, the environmental protection departments at various levels have already done a considerable amount of work and conducted many beneficial explorations and trials. The existing teams may be divided into the following types. First, there is the pollution monitoring team, a team that grew out of the practice of assessing pollution emission fees. The main function of the team is to achieve the monitoring and management of pollution sources using emission fees as an economic tool. The second type is environmental monitoring teams formed in recent years. Today, about 10 provinces and municipalities have tried to form environmental monitoring teams. Members of these teams are mostly people hired by various administrative departments; their duties vary considerably. The third type is the smoke and dust monitoring teams. Only cities in northern China have such teams. They duty is to monitor and prevent smoke and dust pollution of the environment. The fourth type is the environmental police. Environmental police first appeared in Dalian and a few other places in China. Some of the environmental police units were combined with the municipal management team and were limited in their development. The environmental protection departments are also considering forming emission permit inspection and management teams and natural ecological damage inspection teams. The present situation is that a number of teams coexist and considerable confusion exists in their titles and duties.

2. To accelerate the establishment of the environmental law enforcement team, there should be unified understanding, established regulations, clearly defined duties, and improved guidance.

First, it should be made clear that there should be just one environmental law enforcement team and not a multitude of teams. In this regard, there is a unified understanding by the environmental protection departments. Next, the titles and duties of the law enforcement team should be unified following the "Temporary Regulations for Environmental Monitoring in China" issued by the State Environmental Protection Agency. The core of the team's duties consist of on-site monitoring, inspection, and treatment of pollutants, improved monitoring of pollution sources with the aid of the financial means

of assessing emission fines, investigating pollution incidents, conflicts, reports, and visits, and implementing punitive decisions reached by the various levels of government and environmental departments. Third, leaders of the State Council have repeatedly stressed the importance of establishing an environmental law enforcement team. The recent "Decision Regarding Further Enhancement of Environmental Efforts" put forth more specific regulations. The time is right and the conditions are met for establishing a team. Today, the environmental protection system is conducting test-point reform of the state public service system. The various environmental protection departments should seize the opportunity and accelerate the formation of law enforcement teams for their own areas so as to lay a solid foundation for the "Eighth 5-Year Plan" and the 10-year plan in China's environmental protection.

### Foreign Firms Adopt China's New Refrigeration Technology

92WN0160E Beijing GUANGMING RIBAO in Chinese  
14 Oct 91 p 1

[Article by De Huisheng [5049 1920 3932]]

[Text] Recently, young scientist Gu Chujun [7357 7176 6511] applied his energy-saving thermodynamic cycle technology to the automobile arena and developed the world's first automotive air-conditioning system without using Freon. Gu was known for his "Gu's thermodynamic cycle system" and the world's best refrigerant (G2018). The famous German automobile company BMW has formally decided to adopt Gu's air-conditioning system in their luxurious sedan. This marks a milestone that China's air-conditioning technology has entered the world of developed nations.

State Council member and State Science and Technology Commission Chairman Song Jian [1345 0256] remarked that high-tech industries capable of entering the international market and making a name for the Chinese should be cultivated and helped.

Gu's G2018 refrigerant is a multi-component medium with thermophysical properties similar to those of Freon but contains no fluorochlorides that are extremely harmful to the environment. It is, therefore, highly regarded by authoritative international refrigeration research and production institutes. The German BMW Company reacted positively to Gu's refrigeration technology and refrigerant. They first conducted a scientific evaluation of Gu's "XiaoKang" home air-conditioning unit and determined that its efficiency far exceeded that of the best air-conditioner in the world today and that its refrigerant has the lowest damage coefficient to the ozone layer. Subsequently, BMW collaborated with the Huazhao Company led by Gu and tested Gu's automobile air-conditioning system. They found that Gu's system greatly improved the cooling efficiency and has

good compatibility with existing automobile air-conditioning systems. Based on these test results, BMW decided to adopt Gu's system.

This reporter was told that not long ago, the Huazhao Company received a contract to modify one third of supermarket air-conditioning systems in England. That project has now been fully implemented. Many refrigeration experts and companies in the West are also requesting cooperation with Huazhao for technological improvement of existing large-scale refrigeration systems.

### State of Environmental Scientific Research Assessed

92WN0160F Beijing ZHONGGUO HUANJING BAO  
[CHINA ENVIRONMENTAL NEWS] in Chinese  
24 Oct 91 p 3

[Article by Cao Fengzhong [2580 7364 0022] and Liu Yi [0491 0310]]

[Excerpts] In the past 10 years or so, Chinese environmental workers have achieved considerable results. Some of the results are of world standard, but the overall standard of environmental protection scientific research in China is still falling behind that of advanced countries.

The overall science and technology policy in China is that the economic development relies on science and technology which in turn must address economic development. Science and technology are production power, but do not equal production power; S&T can become production power only after a transformation. Workers in China's environmental protection research and management are changing the focus of their work to research planning, research result evaluation, and application of research results. In other words, they are stressing the "transformation" step. Environmental science workers must address the big issue of economic development and contribute to improving China's environment and to the coordinated development of the economy and the environment. [Passage omitted]

## II. Some Considerations

The mandatory promotion of S&T results in environmental protection is a pioneering effort in China. The implementation of this model will have an impact on the development of the entire environmental protection effort in China. This task involves the national policy on environmental protection, the economic policy, laws and regulation and S&T policy. It also involves ministries, provinces, municipalities, industries, and enterprises. Because of the wide involvement, it will have a major effect and we must give the problem some in-depth consideration.

### 1. The target system for evaluation and selection

China has conducted some study and experimentation with the evaluation methods for S&T results. For example, the criteria for selecting the National S&T Advancement Award included the technical level, the

degree of difficulty, the economic, environmental, and social benefits, and the effect on the promotion of science and technology. These levels are divided into advanced international standard, general international standard, advanced domestic standard, and general domestic standard. The National S&T Results Promotion Project has a set of selection criteria but no specific target system. The selection criteria are: advanced and mature technology, significance for industrial and agricultural development, effects on technological advancement in the profession, investment benefits, short recovery period, broad application in different industries, potential for forming a business, market needs here and abroad, and the ability to substitute imports and to export and create foreign exchange. Because these two tasks are basically advisory in nature, they do not have to have all the details and the pace of progress can be faster. Both tasks make a start first and then become perfected in time. The mandatory promotion of S&T results in environmental protection is a command.

Whether this mandatory promotion model can succeed depends on whether the best technology can be selected. This is the starting point of the mandatory promotional model. In addition to S&T level, economic and environmental benefits, and scope of applicability, initial considerations should also include physical conditions (including design, construction, and equipment selection), range of application, relationship to environmental protection, the guiding function for implementing the environmental protection policies, and the technological standard in the profession. The key targets must be appropriate and applicable.

#### 2. Legal ramifications caused by the mandatory promotion of S&T results in environmental protection

In China the mode for promoting S&T results requires that the technology owner and the technology user must follow the regulations regarding fee assessment stipulated in the "technological contract law." The price must be reasonable and there should be an appropriate discount. When a project requires the establishment of a local technical representative organization, the residing unit of the technology should meet with the scientific committee of the province or municipality in question to decide which unit should adopt the technology. A written agreement should be entered by the residing and adopting units of the technology.

Because of the mandatory nature of the S&T result promotion model, questions arise as to whether the user unit should pay for the technology. Also, since the applicable technology to be promoted may have been worked on for more than 10 years, what if there are more than a dozen technology holders?

In an ideal case, the technology satisfies all the application requirements; in reality, each technology has its limits and constraints. Experience tells us that when a government mandate is implemented, there tends to be a "cut and dry" approach. The "cut and dry" approach

may lead to failure at a test point location or in a region. There will be losses associated with failures, even at one single location. Who will be responsible for the losses?

#### 3. Best available technology and environmental standards

The U.S. Environmental Protection Agency set its pollutant emission standards after conducting statistical analysis based on the best available technology. In China the emission standards are already established. In the promotion of the best available technology, the technology may be available but it may not meet the emission standards. The technology that can meet the standards may not be the best practical technology because of the high investment in equipment or poor economic benefits. How would one decide under such circumstances?

Our view is that the first thing in mandatory promotion is caution. When such problems arise, the promotion should not be forced. We should first look for a technology that satisfies both requirements.

In a mandatory promotion model the effect on new S&T results should be considered. We believe that there is a matching problem between scientific research and the best available technology. There are four considerations. First, how to conduct further research on the available technology to suit the Chinese situation; secondly, how to develop environmental science research and explore the solutions to problems in the best application technology for environmental protection; thirdly, develop research so that there is a continuous flow of best applicable technologies from scientific research; and finally, there should be a re-evaluation of the best applicable technology so that the direction may be corrected if necessary in a timely manner.

#### 4. Technological economic policy in mandatory promotion

Since the 1970s, the principal approach towards environmental problems in industrialized nations has been to strengthen the environmental management. An important step in strengthening the environmental management is an economic incentive policy, coupled with an economic punitive policy. When promoting the best applicable technology in China, there should also be a reward and a fine policy. The adoption of such a policy should be discussed with the responsible departments.

Some other problems that may also require coordination and perfection. These include the matching of environmental protection with the eight-point system and the coordination of the policies of the Planning Commission, the Finance Ministry, and the Science Commission in the State Council.

In any case, when China conducts mandatory promotion of the best applicable technology in environmental protection, the operation, incentive and monitor mechanisms must go through continuous improvement and refinement.

### III. Solutions

From a principle viewpoint, China's administrative intervention promotion model is still basically a guiding policy. The government conducts the promotion by granting loans but in the promotion of environmental protection there are no government loans; the promotion relies on the environmental policy.

The model is a combination of economy, technology and the environment. To a business, the economy depends on a good environment, and both environmental management and economic development must rely on advances in science and technology. The mandatory promotion of the best practical technologies will help to coordinate the development in economy, technology and environment.

Scientific research for environmental protection benefits the public in general. A great majority of S&T results have very poor economic benefits, which makes their promotion quite difficult. But on the other hand, the environmental protection effort is different from the other efforts. Environmental protection has a constraining effect on the industry, as manifested in the "emission standards." This function of the environmental protection effort makes mandatory promotion of S&T results possible.

In different models there are different selection, evaluation and promotion procedures, different evaluation targets for the best practical technology, and different relations to the economy and the society. For this reason, we must carefully study the Chinese solution.

#### 1. Combining availability and timing

In the last 10 years China has obtained many S&T results; some of these have been successfully applied. For example, the horizontal trip furnace has been applied in over 20 provinces and cities and created 320 million yuan in economic benefits. Mature technologies such as this may be used immediately. They should be selected and evaluated so that the best practical technology is chosen for national promotion. However, the "best practical technology" must remain the best. Most S&T results have their range of applicability and some results need re-development. To assure that the results are the best and most practical, they must be studied carefully before they are given the title of best and most practical technology.

#### 2. Combining implementation and research

Implementation refers to the screening and evaluation of the best practical technologies. From the actual start of the work, we hope to select a series of technologies

within a year or two and, wherever possible, promote these technologies in a mandatory manner with government orders.

Research refers to the study of the target system, the implementation policy, the legal responsibility, and the operating mechanism. Research will lead to a series of policy and technology support systems for promoting the best practical technologies in China.

#### 3. Combining long term and short term

The implementation of the best practical technology is a strategic policy in China's environmental protection effort. To ensure that this strategic policy is carried out, a complete plan must be formulated. Systematic and comprehensive discussions must be carried out regarding the goals, approaches, steps, and actions of the plan.

Due to the urgency of the situation, China must formulate a "management method for promoting the best practical technology in environmental protection" and a "method for screening and evaluating the best practical technology." These two regulations will be in draft form, to be perfected later in practice.

There must be a long term plan and short term arrangement for implementing the best practical technology. The short term arrangement must consider the current feasibility and compatibility with the long term plan.

#### 4. Mobilizing the state and the ministries

To implement the best practical technology, we need to mobilize the State Environmental Protection Agency, the ministries, and the bureaus and offices in the various provinces and municipalities. The State Environmental Protection Agency sets the policies, but most of the work must be carried out by the provincial or municipal bureaus and offices. In the long run the role of the industry and enterprises must be emphasized. Maybe there can be two levels of basic practical technologies. The national level technologies are to be evaluated by the State and promoted in the whole country. The ministerial level or provincial level technologies are to be evaluated by the bureaus and offices in the ministries, provinces, or municipalities. This would not only reduce errors but also let the enterprises play their role to a fuller degree.

#### 5. Listening to the experts and the users

The promotion of the best practical technology is different from the usual research result awards. An error in giving an award may at most affect the morale of some S&T workers but will not cause economic losses. The promotion of the best practical technology, on the other hand, must be done with ultimate caution because mistakes may lead to unrecoverable losses. In the screening process, we should listen to the opinions of the experts as well as the users. It will take more than a few forms to solicit the input of the users. There must be on-site visits and the solicitation must be announced in the newspaper

before the user opinions are finalized. This is an important step to ensure that the best practical technology is indeed the best.

6. Fully utilize the functions of the planned economy and the market economy

The reform in China is characterized by a combination of the planned economy mechanism and the market modulation mechanism. This is also difficult in China's reform. The promotion of S&T results in environmental protection and the promotion of the best practical technology are also to be viewed in this context. Under this situation, we must take full advantage of the planned economy but also consider the function of the market mechanism. We wonder that, after China established the best practical technologies, whether we should let the market mechanism play its role for environmental protection products and let everybody compete on an equal footing.

In the Eighth 5-Year Plan period, the national promotion plan for S&T results aims mainly at traditional industries. The goal is to transfer a large amount of advanced S&T results into traditional enterprises to promote adjustments of the industrial structure and to elevate the technical level. The plan calls for a phased transfer of 5000 major cross-technology and cross-regional technical results into the national promotion plan. The plan will also help 200 technology-economic consortiums geared toward applying research results in which research, production, and user units participate. Large scale promotion will be conducted in 10 chosen model provinces and municipalities. The State will provide the necessary loans.

In applying the S&T results of China's environmental protection, because the benefits are for the general public, the economic benefits of a great majority of the results will not be perceptible. Therefore, there will be resistance in carrying out the projects. Due to the lack of obvious economic benefits, a big problem before us is whether the best practical technologies can be operated normally for a long period of time.

In the two-dimensional domain of economy and technology, China decided to adopt a two-pronged approach of "technology market" and "administrative intervention" to promote 5000 S&T results in the Eighth 5-Year Plan period using loans as the basis.

In the three-dimensional arena of economy, technology and environment, how do we manage their relationship? It is a subject worthy of study. To make China strong, we must develop the economy. Science and technology must address economic construction and enter the main arena of economic construction. While developing the economy, the environment must also be protected, otherwise the economic development will eventually fail. What is the correct way to manage the relationship among the three coordinates?

China should promote the environmental S&T results in a mandatory manner with government orders so that S&T results may be transformed into productivity as soon as possible, and China's environmental problems may be solved as quickly as possible by relying on advances in science and technology. Solving the environmental problems in China will surely promote economic development.

The mandatory promotion of S&T results in China's environmental protection is the optimum choice in the three-dimensional arena of economy, technology and environment.

**Development Trends of Acid Rain, Control Measures Reviewed**

92WNO221A Beijing ZHONGGUO HUANJING BAO [CHINA ENVIRONMENTAL NEWS] in Chinese  
7 Nov 91 p 3

[Article by Xu Kangfu [1776 1660 1381] and Hao Jiming [6787 0679 2494]]

[Excerpt] [Passage omitted]

**1. Present Conditions and Trends of Acid Rain in China**

China's industrial development took off relatively later than other countries. Though the emission of SO<sub>2</sub> (sulfur dioxide) has reached a certain level, because of the buffer effect of the environment, the harmful effect of acid rain—such as the acidification of bodies of water and the decline of large areas of forest land—has not been obvious. Acid rain has been found generally in areas south of the Yangtze River, such as east China, south central China and south China and areas south of the Qinling Mountains, that is southwestern China. Heavy acid rain is widespread in areas such as southern Sichuan, northern Guangxi, eastern Guizhou, western Jiangxi, and Hunan and Guangdong Provinces. Acid rain in these areas tends to spread and link together. In 14 cities and areas such as Guiyang, Liuzhou, Guangzhou, Shaoguan, Chenzhou, Pingxiang, Changsha, Chongqing, and the Emei Shan, the average annual pH value of rainfall, adjusted for the concentration of hydrogen ions in the rainfall, has dropped below 4.5, a level very close to heavy acid rain countries such as the United States, Canada, and Norway.

In recent years, with the development of energy industries and the general social-economic developments, the distribution of heavy acid rain areas has expanded rapidly. Not only has the acidity of rainfall in urban areas increased every year, but also according to the pH value distribution map of the country for 1990 made by the meteorological departments with actual acid rain data, the acidity of rainfall in most parts of the country has risen. In eastern China, the area has expanded beyond the confines of the Yangtze River. In Jiaodong Peninsula, acid rain with average annual pH value of less than 5.0 has appeared. In the case of Guangzhou city, the situation is even more striking. The average annual pH

value of rainfall in the city has dropped successively every year from 5.36 in 1986 to 4.34 in 1989. That means within a span of 4 years, the acidity of rain in the city has increased 9 times. All these facts point to the need to accelerate the pace in the study of acid rain control strategy. The Chinese government has promptly made decisions and policies in this regard. Following the study of the acid rain problem in southwestern and south China in the Seventh 5-Year Plan, study of acid rain control in key areas will be started very soon in the Eighth 5-Year Plan period. This will bring about a turning point in the fight to stop the spread of acid rain and in the removal of the threat of "killer in the air."

## II. Characteristics and Regional Features of Acid Rain in China

Compared to acid rain in foreign countries, acid rain in China has the following special characteristics:

1. The pollution greatly affects the type of chemicals in the rainfall. The sulfur content is very striking.

In various large cities in China, the content of sulfuric-based compounds and the ratio of sulfuric-based compounds to nitric-based compounds in acid rain is three to five times the corresponding value in European countries and the United States. This reflects fully the characteristics of coal and smoke pollution and low altitude emissions. Speaking in terms of the chemical combinations only, the cities in northern China are affected far more severely by pollution than cities in southern China. Fortunately for the northern cities, the alkaline soil in those cities provide sufficient materials to neutralize the acid rainfall.

2. The distribution of acid rain shows obvious regional characteristics, which have been recognized and are intensifying.

From the monitoring and survey of acid rain in the early years, it has been found that acid rain in China shows a multi-center distribution pattern around the cities. On deeper study, it has been found that in the atmospheric layer close to ground surfaces in the cities, there generally exists a neutralizing layer. The monitoring of the vertical distribution of acid rain in cities such as Shanghai, Chongqing, and Guangzhou shows that the atmospheric layer within 100 meters from the ground has a neutralizing effect on acid rain. Many cities with heavy acid rain found the most acidic rain or very strong acid rain in altitudes above the cleaned-up point. The research also indicates that in strong acid rain, the content of organic acid is relatively small. This foretells that the neutralizing layer may have a higher area. And for the three cities mentioned above, they are all typical and representative in exhibiting the characteristics of high sulfur dioxide emission, high sulfur dioxide concentration in the atmosphere and low concentration of atmospheric particles. The existence of the neutralizing layer is also closely related to low altitude emission of coal and smoke. It points to the fact that localized pollution may have only a small effect on causing acid

rain. Moreover, the local pollutants reaching the upper acid-rain-causing-layer will have an effect beyond the locality. The source of pollutants in the acid rain area can also come from beyond the locality. This has been borne out recently by the rapid spread of heavy acid rain areas.

Looking from the characteristics of frontal systems, low pressure systems and cold fronts of acid rain areas, it can be found that all these are conducive to the large scale rise and accumulation of pollutants within the systems. Looking from the scope and areas of these weather systems, it can be found that the regional characteristics of acid rain are very obvious. In recent years, the rapid acidification of rainfall in Guangzhou is closely related to the large scale development of coal-burning power stations in the Pearl River Delta area (including Hong Kong). In the strategy to deal with this, one point must be emphasized and that is, even though the total emissions of one region is concentrated mainly in one particular locality, the regional nature of the acid rain must still be emphasized. If the pollution problem in one locality is brought under control but the regional pollution problem develops, then the acid rain in that particular locality will still persist and control efforts will be in vain.

## III. The Standpoint of the Control of Acid Precipitation

The net fall of acid rain and acidified pollutants (often referred to as acid precipitation) acidify the environment and it is a process of continual accumulation. The core of environmental acidification is the acidification of soil. Once this problem appears, it is very difficult to reverse the trend. Therefore, the control of the fall of acid rain and acidified pollutants should be based on the prevention of soil acidification.

The results brought about by soil acidification should not be evaluated on the basis of the current economic values. Looking from the interactive relations of soil, environmental ecology and regional meteorological conditions, we should focus our attention on the detrimental effect of acid precipitation on soil acidification. We should not study and develop a strategy based only on the size of the visible damage. We should strengthen our effort in the study of the level of acid precipitation which the environment can take. In other words, this means the critical load the environment can tolerate. This will provide the basis for judgments and the objective in acid precipitation control strategy.

For the urban areas, in the study of critical load, full consideration should be given to the effect of net precipitation. Besides the study of net fall of acidified pollutants, consideration should also be given to the net fall of atmospheric particles. The neutralizing effect of the atmospheric surface layer has shown that the total effect of the two is a neutralizing effect. An evaluation of the neutralizing capacity is very important in determining a reasonable objective for acid rain and acidified pollutants control.

#### IV. Several Basic Issues in the Control of Acid Precipitation

##### 1. Basic Measures—reduction of sulfur dioxide emission

It has been generally recognized by most countries in the world that reducing sulfur dioxide emission is the way to control acid precipitation. The reasons for this is that sulfur dioxide is 1.4 times as powerful as that of nitric compounds in causing acid rain. Moreover, the cost of desulfurization is low. In terms of the ecological considerations, the growth of plants have little demand for sulfur and an over abundance of sulfur will result in accumulation in the environment. On the other hand, nitric compound is a source of active nitrogen and is in heavy demand for plant growth. More often than not, the demand exceeds the supply. Moreover, the sulfur in emissions from coal-burning in China is several times higher than nitrogen compounds. The content of sulfur-based compounds in acid rain is very much higher than nitrogen-based compounds. Therefore it is only reasonable that the reduction of sulfur dioxide be made the fundamental measure in controlling acid precipitation.

##### 2. Control Standards

A look at the history of acid rain research reveals that the control standards are the most uncertain elements. This is because from the various basic research, numerous uncertainties converge here. In selecting categories for the control standards, we experienced various ideas from using the pH value of rainfall to using acid pollutants to sulfur pollutants. In selecting a standard, we considered direct damage to plants and farm produce, the bleeding of salt ions from soil, and critical load. As for the selection of critical load as the control standard, this is clear only in concept and it is still under study at this time. During the Seventh 5-Year Plan period, Guizhou Province on the basis of preliminary studies proposed the critical load for yellow soil and red soil. The overall sulfur precipitation is 2.6 tones per square kilometer per year. Though this critical load standard has regional limitations, nevertheless it can serve as a reference for regions with similar soils. The pH value of 4.5 in rainfall as a standard proposed in earlier years in determining whether acid rain in a region has been under control still has its reference value. This is not a lax standard when compared to a pH value of 5.0 for continental interiors and a pH value of 4.7 in oceanic areas in the world. This is a turning point from the early days when the bleeding of salt ions in soil was used as a standard.

##### 3. Control Method—control of regional sulfur dioxide total emissions

The regional behavior of acid rain clearly shows that the control of acid precipitation necessitates the restriction on total sulfur dioxide emission of the region. Looking at the low altitude emissions of pollutants in China and the degree of severity of sulfur dioxide pollution in cities, we must realize that we should not emphasize desulfurization of the exhaust emissions from power stations, as is the case in Europe and the United States, as the means to

reduce sulfur dioxide emission. China, as a developing socialist country, should make full use of and benefit from coordinated overall planning. Just like the case of urban pollution control in earlier years, China should start a study on the control of regional sulfur dioxide emission and find an optimal control strategy for acid precipitation. This involves the use of the successful experiences and research results of atmospheric sulfur dioxide control data and, on the other hand, grasping the objectives and characteristics of acid rain control. From the realm of methodology, expansion and innovations are then made. At the present time when there are no quantified control standards for acid precipitation, China should first study the various control methods with different objectives, find out the optimal method and through horizontal comparisons spanning different regions, technical and economical data can be gathered and provided for devising regional standards. Secondly, China should integrate the analysis on the trend of atmospheric pollution and acid rain and recommend control objectives and the optimal methods which should give due consideration to controlling acidity in rain and concentration level on the ground surface. To facilitate the control of acidity in rainfall, the proposal should include effective control of high altitude pollutants. To guarantee that the concentration level at ground surface is lowered, the proposal should also provide for reducing low altitude pollutants.

A fixed control objective follows. Then a coordinated effort to achieve the total overall reduction is made. Then pollution control of a region is effectively and economically achieved. This is the advantage of total control. This has been born out by the study of atmospheric pollution in earlier years. In order that the advantages of total control be made fully effective and in order to make full use of the research and study results of urban pollution, the strategy of total control study will face numerous control issues, such as the restructuring of the energy industry, the location and distribution of key sources of pollution and manufacturing technology innovations in pollution-producing industries. All these measures can come up with data such as strength, coordinates and coefficients and can be competitively selected as one of the measures for total control.

#### V. The Basic Principle in the Strategy To Control Acid Precipitation

To summarize, the control of acid precipitation should be achieved through a strategy obtained after a study of high-level industrial development planning and the study of total regional sulfur dioxide emission control. This is pre-determined by the regional characteristics of acid rain. Unlike the case of atmospheric pollution control and planning which emphasize only the surface wind conditions, high-level planning involves the distribution of large sulfur-producing industries and industrial bases, the restructuring and planning of the energy industries, on the basis of the regional distribution of acid rain and the meteorological conditions (air mass flow characteristics) of

the region. The goal is to make effective use of the buffering capacity of the environment.

### Shanghai Police, Environmentalists To Fight Pollution

OW2502013692 Beijing XINHUA in English  
0051 GMT 25 Feb 92

[Text] Shanghai, February 25 (XINHUA)—Police officers and environmental protection personnel in Shanghai, China's largest industrial city, have joined forces to fight various types of pollution which have long annoyed local residents.

The local Public Security Bureau recently issued a regulation stipulating that all motor vehicles must install a ventilated bearing box. Violators will be unable to obtain a license to operate a motor vehicle.

Since the early 1980s, noise and air pollution from automobiles have been an even bigger headache for Shanghai residents, and the local Public Security Bureau has instituted a series of control measures.

According to official sources, Shanghai's Public Security Bureau and environmental departments have decided to establish a low-noise control area covering 60 sq km.

### 141-Environment Protection Program Stepped Up

OW2802024792 Beijing XINHUA in English  
0155 GMT 28 Feb 92

[Text] Beijing, February 28 (XINHUA)—China has been stepping up its so-called "141" environment protection program nationwide.

The "141" program refers to construction of one fast-growing, high-yield timber production base; four wind-shield forest belts in northeastern, northern and north-western China, in the upper and middle reaches of the Yangtze River, along the sea coast, and on the plains; and one sand-control project.

This huge environmental protection program will last until 2050, covering a total area of 60 million ha [hectares], among which 7.97 million ha will be a fast-growing, high-yield timber production base; 35.08 million ha will be windbreak forest belts in northeastern, northern and northwestern China, with nine million ha already completed; 7.42 million ha will be a protection forest belt on the upper and middle reaches of the Yangtze, with 1.8 million ha already completed; and 3.55 million ha will be along the sea coast with 1.33 million ha already completed.

The sand-control project will cover six million ha.

It is predicted that about 66 million ha of farmland will be protected after the "141" environment protection program is completed.

### Regulations on Protection of Wild Animals

OW0203024992 Beijing XINHUA Domestic Service  
in Chinese 2143 GMT 29 Feb 92

[Regulations of the People's Republic of China on Protection of Wild Terrestrial Animals]

[Text] Beijing, 1 March (XINHUA)—Chapter 1. General Provisions

**Article 1.** These Regulations are based on the "Wild Animal Protection Law of the People's Republic of China" (called Wild Animal Protection Law for short hereinafter).

**Article 2.** The wild terrestrial animals referred to in these Regulations denote precious, endangered, or useful wild terrestrial animals (called wild animals for short hereinafter) which are protected by law and which have important economic or scientific research value; wild animal products denote any parts of a wild animal and their derivatives.

**Article 3.** The Forestry Administrative Department of the State Council is in charge of work concerning wild animals.

Forestry Administrative Departments of provincial, autonomous regional, and municipal people's governments are in charge of work concerning wild animals in their respective administrative regions. Administrative departments in charge of work concerning wild animals under autonomous prefectural, county, and city people's governments shall be designated by provincial, autonomous regional, and municipal people's governments.

**Article 4.** Concerned departments of the people's governments at and above the county level should encourage and support scientific research and educational institutions in scientific research on wild animals.

**Article 5.** Administrative departments in charge of work concerning wild animals have the authority to supervise and inspect the implementation of the "Wild Animal Protection Law" as well as these Regulations, and organizations or individuals under inspection should cooperate with them.

### Chapter 2. Wild Animal Protection

**Article 6.** Local people's governments at and above the county level should undertake publicity and education on the protection of wild animals, and may establish an appropriate period—such as wild animal protection month or bird-loving week—so as to raise the citizens' awareness of the need to protect wild animals.

**Article 7.** The forestry administrative department of the State Council—and the forestry administrative departments of provincial, autonomous regional, and municipal people's governments—should organize periodical surveys of wild animal resources and set up resource files to provide a basis for formulating wild animal resource

protection and development plans, and for formulating and revising state and local lists of major protected wild animals.

A general survey of wild animal resources shall be conducted every 10 years, and the general survey plan is subject to approval by forestry administrative departments of the State Council or by the forestry administrative departments of provincial, autonomous regional, and municipal people's governments.

**Article 8.** Administrative departments in charge of work concerning wild animals under the people's governments at and above the county level should organize forces in all quarters of society and adopt both bio-technological and technological measures to protect and improve the living environment for wild animals and to protect and develop wild animal resources.

No organization or individual is permitted to destroy the living and breeding grounds or the survival conditions of wild animals under state and local protection.

**Article 9.** If any wild animal under state and local protection is found wounded, sick, hungry, trapped, or astray, the discoverer should promptly report it to the local administrative department in charge of work concerning wild animals so that the latter may come to its rescue. The discoverer may also take the animal to any nearby organization which has the ability to take care of the animal. The caring organization should immediately report the discovered animal to the administrative department in charge of work concerning wild animals, and should handle the animal according to relevant stipulations of the Forestry Administrative Departments of the State Council.

**Article 10.** Organizations and individuals concerned should adopt measures to prevent wild animals under state and local protection from suffering any danger or harm. The administrative department in charge of wild animals under the local people's government may be requested to compensate for any loss incurred in the course of protecting wild animals under state and local protection. The local people's government should provide compensation according to relevant stipulations of the provincial, autonomous regional, or municipal people's government if the loss is found to be true and warrants compensation.

### Chapter 3. Control of Hunting of Wild Animals]

**Article 11.** It is prohibited to hunt and kill wild animals under special protection by the state.

In the cases listed below, in which the need arises for hunting wild animals under special protection by the state, application for a specially approved hunting license must be submitted to the authorities:

1. Hunting for wild animals is necessitated by scientific study and by survey of their resources;

2. It is necessary to obtain breeds from the open country for the purpose of raising and proliferating wild animals under special protection by the state;

3. It is necessary to obtain wild animals under special protection by the state from the open country for the purpose of undertaking scientific research projects at and above the provincial level, or for national pharmaceutical production;

4. It is necessary to obtain wild animals under special protection by the state to meet the needs of propagandizing and popularizing knowledge about wild animals or of education and exhibitions;

5. It is necessary to obtain wild animals under special protection by the state to meet the needs of state affairs-related activities;

6. Scientific demonstration and proof finds it necessary to hunt wild animals under special state protection to regulate and control the quantity and structure of their breeds and herds; and

7. It is necessary to hunt and capture wild animals under special protection by the state under particular circumstances other than those specified above.

**Article 12.** The procedures to apply for a specially approved hunting license are as follows:

1. Those who find it necessary to hunt and capture wild animals under A-class state protection must attach to their applications to the responsible Forestry Administrative Department of the State Council for specially approved hunting licenses the comments signed by the responsible Forestry Administrative Department of the people's government of the province, autonomous region, or municipality in which applicants have their domicile registration and are going to carry on the hunting;

2. Those who find it necessary to hunt and capture wild animals under B-class state protection in their respective province, autonomous region, and municipality must attach to their applications to the responsible Forestry Administrative Department of the people's government at the level of province, autonomous region, and municipality for specially approved hunting licenses the comments signed by the responsible Forestry Administrative Department of the people's government at the level of the county in which applicants have their domicile registration.

3. If a party who wants to hunt B-class wild animals under state protection in a province, autonomous region, or municipality other than the place where he resides, he shall obtain a reference signed by the Forestry Administrative Department of the province, autonomous region, and municipality where he resides and submit an application, together with the reference, for a special hunting license from the government Forestry Administrative Department of the province, autonomous region, or municipality where the hunting is to take place.

If a zoo wants to capture an A-class wild animal under state protection, it shall obtain approval from the Construction Administrative Department of the State Council prior to applying for a special hunting license from the Forestry Administrative Department of the State Council; if it wants to capture a B-class wild animal under state protection, it shall obtain approval from the Construction Administrative Department of the provincial, autonomous regional, and municipal government prior to applying for a special hunting license from the Forestry Administrative Department at the same level.

The department charged with issuing special hunting licenses shall make a decision of approval or disapproval within three months of receipt of the application.

**Article 13.** A hunting license shall not be issued in any of the following circumstances:

1. When the applicant is able to obtain legally—and not by way of hunting—a breeding stock or product made from the animal, or otherwise meets its needs;
2. When the hunting application does not conform to relevant state regulations, or the hunting tools, methods, time, or location is inappropriate; and
3. When it is inappropriate to hunt or capture the animal in question in view of the status of wild life resources.

**Article 14.** A unit or individual who has obtained a hunting license must conduct the hunting in accordance with the species, quantity, location, time limit, tools, or methods stipulated in the license; precaution must be taken not to injure animals by accident or damage their habitat. Within 10 days after the hunting operations are over, an application for examination shall be submitted to the administrative department in charge of work concerning wild animals of the county-level people's government.

The administrative department in charge of work concerning wild animals of the county-level people's government shall supervise and monitor hunting activities of wild animals under state protection in their respective jurisdiction and shall report the supervising and monitoring results to the departments responsible for issuing hunting licenses on a timely basis.

**Article 15.** Those who want to hunt wild animals not under special state protection must possess a hunting license and hunt animals in accordance with the species, quantity, location, time limit, tools and methods stipulated in the license.

Hunting license should be issued by departments in charge of forestry administration in various provinces, autonomous regions, and municipalities directly under the jurisdiction of the central authorities in accordance with the stipulations of the State Council's department in charge of forest administration. Licenses will be issued by people's government departments in charge of wild animal administration at and above the county level.

Hunting licenses should be examined annually.

**Article 16.** Departments in charge of forestry administration in various provinces, autonomous regions, and municipalities directly under the jurisdiction of the central authorities should decide which species of wild animals, not under special state protection, can be hunted and should set a ceiling on the quantity of various species of wild animals which may be hunted each year. The species of wild animals and ceilings on the quantities of various species of wild animals which may be hunted are to be proposed by people's government departments in charge of the administration of wild animals at the county level, according to the principle of protecting the sources, for perpetual consumption, of said wild animals. Those proposals should be approved by departments in charge of forestry administration of people's governments in various provinces, autonomous regions, and municipalities directly under the jurisdiction of the central authorities and reported to the department in charge of forestry administration of the State Council for the record.

**Article 17.** Departments in charge of the administration of wild animals of people's governments at and above the county level should organize hunters to conduct hunting activities in a planned manner.

The establishment of permanent hunting sites in areas suitable for hunting should be approved by departments in charge of forestry administration of people's governments in various provinces, autonomous regions, and municipalities directly under the jurisdiction of the central authorities.

**Article 18.** Hunters are forbidden from hunting wild animals with military weapons, air guns, poison, dynamite, locally made guns, blunderbusses, and any uncontrolled hunting devices that may endanger the safety of human beings and livestock. Illuminated night hunting, encircling an area to hunt wild animals in an annihilating manner, using fire or smoke to chase wild animals, and using other tools and methods not allowed by people's governments at and above the county level or their departments in charge of the administration of wild animals are all prohibited.

**Article 19.** Field surveys and scientific research on wild animals under first priority special state protection by scientific research or teaching institutes should be arranged by the department in charge of forestry administration of the State Council. Field surveys and scientific research on wild animals under second priority special state protection should be arranged by departments in charge of forestry administration in various provinces, autonomous regions, and municipalities directly under the jurisdiction of the central authorities. Local departments in charge of the administration of wild animals should provide necessary support for such surveys and scientific research.

**Article 20.** Foreigners who want to conduct field surveys, gather samples, or film wild animals under special state

protection must submit requests to departments in charge of forestry administration in various provinces, autonomous regions, and municipalities directly under the jurisdiction of central authorities where those wild animals are located. Departments in charge of forestry administration in various provinces, autonomous regions, and municipalities directly under the jurisdiction of the central authorities, after review, should report results to the department in charge of forestry administration of the State Council or its designated units for approval.

**Article 21.** Foreigners who want to conduct hunting within China's territories must do so on hunting sites open to foreigners approved by the department in charge of forestry administration of the State Council. Foreign hunters must observe China's relevant laws and regulations.

#### **Chapter 4. Control over Domestication and Breeding of Wild Animals**

**Article 22.** Those engaged in domesticating and breeding wild animals designated as key protected wild animals by the state must possess a license. Persons engaged in domesticating and breeding wild animals designated as key protected wild animals by the state, whose main purpose is production and business, must register with an industrial and commercial administrative department by presenting their wild animal domestication and breeding licenses.

In accordance with the actual conditions and the needs of work, the administrative department in charge of forestry under the State Council and that under people's governments in provinces, autonomous regions, and municipalities directly under the central government may authorize relevant departments of the same rank to issue licenses for domestication and breeding of wild animals designated as key protected wild animals by the state. Administrative departments in charge of forestry may authorize administrative departments in charge of construction of the same rank to issue licenses to zoological gardens engaged in domesticating and breeding wild animals designated as key protected wild animals by the state.

Domestication and breeding licenses will be printed by the administrative department in charge of forestry under the State Council.

**Article 23.** A person who brings in wild animals for the purposes of domestication and breeding from foreign countries or from other provinces, autonomous regions, and municipalities directly under the central government shall adopt appropriate measures to prevent their escape into open country; if the wild animals are to be freed into open country, the unit freeing the animals will submit an application to the local administrative department of forestry under the people's government of the province, autonomous region, and municipality directly under the central government. After scientific verification is made by a scientific research institute designated

by the department in charge of forestry under a people's government at and above the provincial level, the application is to be submitted to the department in charge of forestry under the State Council or other authorized units for approval.

Where a person has arbitrarily freed a wild animal that has been brought in from foreign countries or other areas to the open country or has caused its escape into the open country because of improper control, the relevant wild animal administrative department shall order him to recover the animal within a prescribed time or adopt other remedial measures.

**Article 24.** Rare and endangered species of wild animals imported from foreign countries with the approval of the administrative department in charge of forestry under the State Council may be regarded as key protected wild animals of the state. Other wild animals imported from foreign countries with the approval of the people's government of a province, autonomous region, and municipality directly under the central government may be regarded key protected wild animals of local areas.

#### **Chapter 5. Control Over Dealing In and Use of Wild Animals**

**Article 25.** Units engaged in purchasing, domesticating, and breeding wild animals or other products designated as key protected wild animals and products by the state are to be reported, in cooperation with the relevant departments, by the administrative department in charge of forestry under the people's government of a province, autonomous region, and municipality directly under the central government to a people's government of the same rank or to an organization authorized by it for approval. After obtaining permission, these units are to register with an administrative department in charge of industry and commerce.

Units which have been approved for registration according to the provisions of the previous paragraph are not permitted to purchase important state-protected wild animals and other products not approved for sale.

**Article 26.** Persons who deal in and use non state-protected wild animals or other products are to register with an administrative department in charge of industry and commerce.

A unit and individual who have been approved to register to deal in and use non major state-protected wild animals or other products must carry out their business operations by observing the annual quota set by the administrative department in charge of forestry under the people's government of a province, autonomous region, and municipality directly under the central government or an authorized unit.

**Article 27.** Selling and buying of important state-protected wild animals or other products are prohibited at country fairs or markets.

A unit or individual with hunting licenses wishing to sell non-state-protected wild animals or other products obtained legally are to sell them to authorized units in accordance with the type and amount of animals and other products prescribed by the hunting license, or to sell them at country fairs or markets designated by the relevant department of a local government.

**Article 28.** Departments responsible for wild animal administration and industrial and commercial administration departments at all levels of people's governments above the county level should establish supervision and inspection systems on trade in and use of wild animal or wild animal products to strengthen supervision and control over trade in and use of wild animals or wild animal products.

Industrial and commercial administration departments shall supervise and control wild animals or wild animal products at country fairs; departments responsible for wild animal administration, industrial and commercial administration departments, or their authorized units shall supervise and control trade in wild animals or wild animal products outside country fairs.

**Article 29.** In order to transport or carry key state protected wild animals or wild animal products across county lines, special hunting licenses or training and breeding licenses should be presented as application through departments responsible for wild animal administration of the county-level people's governments for approval of the department responsible for forestry administration of provincial, autonomous regional, or municipal people's governments or authorized units. Provincial, autonomous regional, and municipal departments responsible for forestry administration may authorize departments responsible for construction administration at the same level to approve transportation of key state protected wild animals for the purpose of breeding of animals between zoological gardens.

**Article 30.** Export of key state protected wild animals or wild animal products and import or export of wild animals or wild animal products restricted under international conventions to which China subscribes must be examined by departments responsible for forestry administration of provincial, autonomous regional, or municipal people's governments where the importing and exporting unit or individual resides and be reported to the State Council's department responsible for forestry administration or the State Council for approval; importing and exporting activities classified as trade shall be handled by units responsible for import and export of related commercial products.

Zoological gardens' need to import or export wild animals mentioned in the previous section for the purpose of exchanging animals must first be examined by the State Council's department responsible for construction administration prior to approval by the State Council's department responsible for forestry administration or

prior to the State Council's department responsible for forestry administration's report to the State Council for approval.

**Article 31.** The economic benefits gained from utilizing wild animals or their products when holding exhibitions abroad or other activities should mainly be used for the work of protecting wild animals.

## Chapter 6. Rewards and Punishments

**Article 32.** Units and individuals related to one of the following sections should be rewarded by people's governments at county and above levels or departments in charge of the administration of wild animals:

1. Units and individuals making outstanding contributions to investigating wild animal sources, protecting and handling wild animals, publicizing the situation of and educating people on wild animals, and developing and making good use of wild animals.
2. Units and individuals strictly implementing laws and regulations on protecting wild animals and making outstanding achievements.
3. Units and individuals saving, protecting, raising, or helping rare and endangered wild animals procreate and making outstanding achievements.
4. Units and individuals uncovering situations or activities in violation of regulations protecting wild animals, putting a timely halt to such activities, or reporting violations to departments concerned.
5. Units and individuals making important contributions to detecting and handling cases damaging to wild animal sources.
6. Units and individuals making important achievements in scientific research on wild animals or in effectively applying and promoting the results of scientific research.
7. Units and individuals protecting and managing wild animals at the grass-roots level for more than five years with significant achievements.
8. Units and individuals making other special contributions to protecting and managing wild animals.

**Article 33.** The illegal trapping and killing of wild animals under special state protection shall be investigated. Criminal responsibility shall be determined in accordance with the supplementary regulations on punishment for trapping and killing rare and endangered wild animals adopted by the Standing Committee of the National People's Congress. In cases where crimes are relatively minor and do not require serious punishment, departments in charge of the administration of wild animals may confiscate wild animals trapped by people. They may also confiscate hunting tools and illegal income, revoke hunting licenses, and levy a fine less than

10 times the value of the wild animals trapped or less than 10,000 yuan if no wild animals have been trapped.

**Article 34.** Fines imposed in accordance with Article 32 of the Law for the Protection of Wild Animals on offenders who hunt and capture unimportant state-protected wild animals in prohibited zones, prohibited seasons, or by using prohibited tools or methods in violation of the laws and decrees for the protection of wild animals shall be levied in accordance with the following provisions:

1. An offender with a bag shall be fined not more than eight times the value of the bag;
2. An offender without a bag shall be fined not more than 2,000 yuan.

**Article 35.** Fines imposed on offenders who violate the laws and decrees for the protection of wild animals by failing to observe provisions prescribed in their hunting license shall be levied in accordance with the following provisions:

1. An offender with a bag shall be fined not more than five times the value of the bag;
2. An offender without a bag shall be fined not more than 1,000 yuan.

**Article 36.** When an offender is to be fined in accordance with Article 34 of the Law for the Protection of Wild Animals for destroying the main habitats and breeding places of important state-protected or locality-protected wild animals in natural reserves or hunting-prohibited zones in violation of the laws and decrees for the protection of wild animals, the fine shall be less than three times the expenses needed to restore the habitats and breeding places to their original state.

An offender who destroys the main habitats and breeding places of unimportant state-protected or locality-protected wild animals in nature reserves or in zones where hunting is prohibited shall be ordered by an administrative department in charge of wild animals to end his destructive acts and restore the habitats and breeding places within a prescribed time. Moreover, he shall be fined not more than two times the expenses needed for the restoration of the habitats and breeding places.

**Article 37.** If an offender sells, buys, transports, or takes as cargo important state-protected or locality-protected wild animals or other products, he shall have his animals, products, or illegal income confiscated by a department of industrial and commercial administration or an authorized wild animal administrative department. Moreover, the offender may be subject to a fine of not more than 10 times the value of the animals and products.

**Article 38.** The fine imposed on an offender according to Article 37 of the "Wild Animal Protection Law" for falsification, resale, or transfer of a hunting license or a

domestication and breeding license shall be not more than 5,000 yuan. The fine imposed on an offender according to Article 37 of the "Wild Animal Protection Law" for falsification, resale, or transfer of a specially approved hunting license or a wild animal import-export permit shall be not more than 50,000 yuan.

**Article 39.** Whoever domesticates or breeds state-protected wild animals without a license or beyond the limits set by the license in violation of the "Wild Animal Protection Law" and regulations, shall have his illicit income confiscated by the department in charge of the work concerning wild animals, and be fined not more than 3,000 yuan; and may also have his wild animals confiscated, and his domestication and breeding license revoked.

**Article 40.** A foreigner who conducts a field observation, collects samples, or shoots motion pictures or other video films on state-protected wild animals in China, without an approval from the proper authorities, shall have his collected data, and samples and films confiscated by the department in charge of the work concerning wild animals, and may also be fined not more than 50,000 yuan.

**Article 41.** Any of the following behavior, if not a felony, shall be subject to punishment by the public security organ according to "Regulations Governing Offenses Against Public Order of the People's Republic of China":

- (1) Refusing to let wild animal administrators perform their official duties according to law or obstructing them from doing so;
- (2) stealing, looting, or intentionally damaging wild animal protection instruments or equipment;
- (3) stealing, looting, or forcibly seizing wild animals not under state protection or their products; and
- (4) hunting, without a license, a small number of wild animals not under the state protection.

**Article 42.** If a person violates the "Wild Animal Protection Law" and regulations and fails to recapture an escaped wild animal under his control within the prescribed time as ordered to do so, or fails to restore a damaged wild animal habitat or breeding place to its normal conditions within the prescribed time as ordered to do so, the wild animal administrative department or an authorized organization may do the recapturing or restoring job for the offender with all the expenses paid by the offender.

**Article 43.** If the violation of the "Wild Animal Protection Law" and regulations is criminal, the offender shall bear a criminal responsibility.

**Article 44.** Articles confiscated under the "Wild Animal Protection Law" and regulations shall be handled in accordance with the stipulations of the forestry administrative department of the State Council.

**Chapter 7. Supplementary Articles**

**Article 45.** These Regulations shall be interpreted by the forestry administrative department of the State Council.

**Article 46.** These Regulations shall go into effect on the day of their promulgation.

**Nation's Afforestation Achievements Termed 'Outstanding'**

OW2902161692 *Beijing Central People's Radio Network in Mandarin 1030 GMT 29 Feb 92*

[From the "National Hookup" program]

[Text] Addressing the 11th plenary session of the All-China Greening Committee this afternoon, Tian Jiyun, chairman of the All-China Greening Committee and vice premier of the State Council, said: China has made remarkable achievements in afforestation, balanced total growth and consumption of forest resources, wiped out the forest reserves deficit, reversed the long-standing negative situation of a decline in forest reserves, and started to expand both forest areas and reserves simultaneously.

Tian Jiyun said: Compared with the last forest survey, the latest one shows that the land covered by trees throughout the country has expanded from 1.87 billion mu to 1.93 billion mu and the percentage of forest cover, from 12.98 percent to 13.4 percent. Total timber reserves have amounted to 10.868 billion cubic meters. Tian Jiyun called this an outstanding record and the results of the entire society's efforts to run the forestry industry and the whole nation's participation in greening projects.

The 11th plenary session of the All-China Greening Committee was held in the Zhongnanhai this afternoon. Vice Premier Tian Jiyun chaired the session. Gao Dezhan, vice chairman of the All-China Greening Committee and minister of forestry, briefed the session on the progress of the nationwide afforestation work last year and arrangements for this year. The session adopted the "Opinions on Further Intensifying Mandatory Tree Planting by the Entire People," the "Opinions on Further Intensifying Afforestation and Greening Projects by Departments," and the "Decision on Awarding the 1991 National Greening Medals." According to the decision, 550 comrades, including (Chen Xianyuan), were awarded the 1991 national greening medals for their outstanding performance in afforestation and the greening work. On behalf of the State Council, Vice Premier Tian Jiyun extended his hearty congratulations to the award winners.

Tian Jiyun stressed: Strengthening the leadership and working conscientiously are the key to do a good job in running the afforestation undertakings. This year, all localities should conduct serious surveys on the implementation of the responsibility system for achieving afforestation targets by leaders at various levels during their terms of office and the management of selected

afforestation areas by leading cadres at all levels. He said: The mandatory tree planting movement by the entire people should be conducted in an even more down-to-earth manner each year. Currently, we should make efforts to standardize and institutionalize this movement and promote it in various afforestation bases in a scientific way. Bases for mandatory tree planting should be built where conditions allow.

**National Environment Campaign Announced**

OW0203134092 *Beijing XINHUA in English 1315 GMT 2 Mar 92*

[Text] Beijing, March 2 (XINHUA)—China will work hard and take concrete measures to improve its environmental protection, according to a Chinese environmental protection official here today.

The country is facing serious environmental problems despite the progress it has made in the control of pollution, he added.

Speaking at a press conference, director of the State Administration for Environmental Protection Qu Geping called on the whole country—particularly the country's 400 million young people—to join the fight to solve ecological problems.

"A national environmental propaganda campaign will reach its climax in April, May and June, the season when Earth Day, May the Fourth Youth Day, June First Childrens Day, June Fifth World Environment Day and the United Nations environment and development conference take place," he said.

Because of rapid population growth, poor urban infrastructure, rapid economic growth, backward technology, and high consumption of raw materials and energy, Gu said, the country's environment deteriorated last year in the following aspects:

- Air pollution.** Since China takes coal as the main energy source, smoke constitutes a major problem of pollution, which in recent years caused acid rain particularly in cities located in southwest and south China;
- Water pollution.** In 1990, about 35.4 billion tons of waste water poured into rivers, lakes and ports;
- Industrial Solid Waste.** In 1990, some 0.58 billion tons of industrial solid waste was dumped, of which only 30 percent has been recycled;
- Ecological Deterioration.** Since the 1950s, one third of China's farmland has been ruined by soil erosion. Forest fires, deforestation, plant diseases and insect pests are still chronic problems for China's forests. The country's grassland is also shrinking, according to the official.

### **China Implementing Environment Monitoring Network**

OW0303111092 Beijing XINHUA in English  
1043 GMT 3 Mar 92

[Text] Beijing, March 3 (XINHUA)—China is speeding up its construction of an environment monitoring network in 11 trial cities and has completed 68 national-level monitoring stations of environment quality in addition to the 130 stations.

According to the State Environment Protection Administration, the construction of an environment monitoring network is an important step will help organize all the monitoring forces from the national departments of resources protection and industrial and environment protection units.

The network will help draft reports about the national and regional quality of environment and sewage drainage.

Now China has established 133 monitoring stations of rivers, 102 air monitoring stations and 112 acid monitoring stations.

According to statistics, China has more than 4,000 monitoring stations, over 90 percent of which are at municipal and county levels.

In order to construct and administer the national monitoring network, China will check up and appraise all the air monitoring stations in 32 major cities and establish computer administration files for the national monitoring network.

### **Licensing System To Control Discharge of Fumes, Gas**

HK0303094492 Beijing CHINA DAILY in English  
3 Mar 92 p 1

[By staff reporter Zhu Baoxia: "Licensing System To Reduce Air Pollution"]

[Text] China's environmental authorities—in a bid to stem the worsening atmospheric pollution in the country's many fast-developing cities—is launching a new "licensing system" to control the discharge of fumes and gas into the open air.

Under the system owners of polluting gas sources will have to apply for licenses allowing them to discharge a limited volume of such gas into the atmosphere. They face fines and penalties if the volume exceeds the licensed limit.

The National Environmental Protection Agency (NEPA), encouraged by the successful enforcement of an earlier-launched licensing system to control discharge of polluted waste water, believes that introduction of the new system this year will help improve atmospheric conditions in many cities.

Pilot work has been launched in 17 major industrial cities and municipalities throughout the country: Beijing, Tianjin, Shanghai, Shenyang, Guangzhou, Changzhou, Taiyuan, Guiyang, Chongqing, Liuzhou, Yichang, Jilin, Xuzhou, Mudanjiang, Kaiyuan, Pingdingshan and Baotou.

Enterprises in these municipalities and cities will soon have to apply for permission from local departments in charge of environmental protection if they discharge waste gases into the environment.

And those who churn out harmful gas or discharge excessive amounts of waste into the atmosphere will be slapped with fines and ordered to change the situation within a fixed period of time.

The fines will be used to improve pollution-fighting facilities and techniques.

The strategy is designed to help develop effective techniques and methods to protect China's atmosphere, and to build up a practical licence administrative system that suits the Chinese situation, according to Li Lei from the NEPA's air pollution control division.

Each pilot city has so far mapped out specific plans for the programme, including duties for environmental protection administrative personnel, the maximum amount of waste that is allowed to be discharged into the surroundings as well as penalties for those who violate the regulations.

According to a latest NEPA report on the Chinese environment, China's large cities still suffer from heavy air pollution and the atmosphere of small cities is worsening.

In 1990, large factory chimneys churned out some 8,500 billion cubic metres of waste gases, a 2.8 percent increase on the year before. Some 15 million tons of sulphur dioxide and 21 million tons of industrial dust were spewed into the sky.

Northern cities were more polluted than those in the south, with an average in the north of 475 micrograms of suspended particles per cubic metre, 44 percent more than their southern counterparts. The nation's average was 387 micrograms per cubic metre.

Shijiazhuang, Nanchang, Jilin, Urumqi, Luoyang and Tangshan were among the most dusty cities, while Chongqing, Guiyang, Yibin, Shijiazhuang, Qingdao, Nanchang and Urumqi suffered most seriously from sulphur dioxide pollution.

### **UN, World Bank Loans To Help Study 'Greenhouse' Gases**

HK0803062792 Beijing CHINA DAILY in English  
7 Mar 92 p 1

[By staff reporter ZHU Baoxia: "Loans To Help Study 'Greenhouse' Gases"]

[Text] The United Nations Development Programme (UNDP) and the World Bank are to give China \$3.6 million over two years to help its efforts to improve the environment.

The grant will go to a \$2 million project focusing on issues and options in greenhouse gas emission control and a \$1.68 million project to protect China's abundant diversity of biological species.

Roy D. Morey, UNDP representative in China, said the projects were two of the first approvals ever to be funded under the Global Environment Facility (GEF), a co-operative venture among national governments, the World Bank, the United Nations Environment Programme (UNEP) and UNDP, valued at approximately \$1 billion.

The GEF, a three-year pilot programme established in 1990, provides grants and low-interest loans to developing countries to help them carry out activities to relieve pressure on global ecosystems, with funding from national governments.

The World Bank administers the Global Environment Facility's trust fund and is responsible for GEF investment operations, while UNDP co-ordinates and manages the financing and execution of pre-investment activities and technical assistance activities, such as project formulation and donor co-ordination.

UNEP provides scientific and technological guidance in project selection and implementation. More than \$40 million under the GEF has already been committed to China.

Morey said he hoped the two Chinese projects would serve as examples for the rest of the world.

China burns one billion tons of coal a year, making it the world's largest consumer of the fuel and a major contributor to greenhouse gas emissions. The work to assess and limit such emissions in China is essential to the worldwide effort for the reduction of global warming, he said.

The emission control project will assess greenhouse gas as input for both policy formulation related to global warming and the development of China's position in international negotiations.

The project will evaluate the macroeconomic feasibility and economic growth implications of limiting greenhouse gas emissions. It will also focus on two high priority areas for carbon dioxide emission reduction.

#### **Spread of Central Heating Curbs Urban Pollution**

HK0803063892 Beijing CHINA DAILY in English  
7 Mar 92 p 3

[Report: "More Cities Say Central Heat Curbs Pollution"]

[Text] An urban central heating system that can help curb air pollution has been developed rapidly in China's northern cities during the past decade.

According to a report in China's Environmental News, 12.08 percent of 190 million square metres of housing now have central heating, 10 years ago, only 2 percent, or a total of 11 million square metres of housing, had central heating.

Since then, central heating systems have spread from only a dozen major Chinese cities to over 100.

The Chinese government has been encouraging the central heating system by setting up heat and power factories and building large boilers. The system reduces air dust and saves money and energy compared with the old-fashioned small boilers that heat individual spaces.

A recent survey conducted by the State Environment Protection Agency contributed Beijing's improvement in atmosphere pollution to its efforts to develop central heating systems.

Now, large boilers heat about 22 percent of Beijing's total 99 million square metres of housing.

As a result, the air dust in urban areas dropped from 26.4 tons to 21.8 tons per square kilometre a month.

According to the survey, central heating in 10,000 square metres of housing could save 10 million tons of coal annually, worth a total of 1.5 billion yuan (\$277 million).

China's northern cities were more polluted than those in the south, with an average of 475 micrograms of suspended particles per cubic metre, 44 percent more than in southern cities. The national average was 387 micrograms per cubic metre.

Shijiazhuang, Urumqi, Luoyang and Tangshan, which need heating in the winter, were among the most dusty cities, and small-boiler separate heating system were blamed for producing the heavy air dust.

The central government encouraged local municipal governments to invest more in central heating.

Official figures showed that in Beijing city, Helongjiang, Jilin and Liaoning provinces, local investment reached 342 million yuan (\$63.333 million) during 1988-89 period, accounting for 55 percent of the country's total investment in central heating.

However, the survey also pointed out that the development pace of central heating could not meet the pace of housing construction development.

The four provinces and cities mentioned above built 303 million square metres of new housing in the past 10 years.

The 125 million square metres of central heating would cover only 42 percent of this housing.

And with the economic development in South China, some southern cities began to build housing with central heating for the urban dwellers. So the potential for developing central heating in China is great, said the report.

### **CITES Approves Bill for Alligator Commercialization**

OW1303085192 Beijing XINHUA in English  
0809 GMT 13 Mar 92

[Text] Beijing, March 13 (XINHUA)—Chinese alligators have become internationally marketable starting this year, according to an official in charge of wildlife management at the Ministry of Forestry.

The eighth meeting of the Convention of International Trade in Endangered Species of Wild Flora and Fauna (CITES), which wound up yesterday in Tokyo, approved the bill by the Chinese Government on the commercialization of the species.

The efforts by the Chinese Government to protect and breed rare species and the remarkable results achieved drew the praise and interest of the 1,000-odd participants from 100-odd member countries of CITES, who

expressed their willingness to strengthen their cooperation with China in this field, the official said.

The country now has over 3,700 Chinese alligators at a breeding center in east China's Anhui Province.

Statistics show that at the center the insemination rate has reached 97 percent, the incubation rate has hit 95 percent and the infant mortality rate has been kept down to four percent.

The center has an annual incubation capacity of between 2,000 and 7,000 alligators, according to the official.

China started domestic breeding of Chinese alligators in 1982, when the country had less than 500 of the rare species. The government put the then-endangered species in the first category of protection.

However, CITES did not approve another Chinese bill on the sale of Manchurian tigers, though it expressed appreciation of Chinese efforts in this regard, the official said.

It is learned that China has more than 170 Manchurian tigers, including those in the wild, and in breeding centers and zoos.

## HONG KONG

### Greenpeace Criticizes U.S. 'Dumping' of Plastic Waste

HK0903101092 Hong Kong SOUTH CHINA MORNING POST in English 9 Mar 92 p 13

[By Kathy Griffin]

[Text] Hong Kong is becoming a dumping ground for the United States' rubbish, according to the environmental group, Greenpeace.

It said the United States exported more than half of its plastic waste to Hong Kong for recycling. Greenpeace said the waste was often too low-grade for U.S. recyclers or could not be recycled at all, meaning the host country had to dispose of it.

The recycling processes could also be hazardous to workers and the environment, and traders were coming to Asia because of community opposition to recycling plants in the United States, it said.

Last December alone there were 150 shipments of U.S. plastic waste to the territory which were declared to the U.S. Customs Department, totalling, 3,425 tonnes and accounting for 52 percent of all such exports.

The Census and Statistics Department said that last year Hong Kong imported 425,000 tonnes of plastic waste worth more than \$1.1 billion, and about half of it came from the United States.

The trade only recently came to light after the U.S.-based branch of Greenpeace began investigating it in the wake of several high-profile toxic waste shipments from the United States and Europe to developing countries.

Hong Kong's Environmental Protection Department (EPD) said it only recently became aware of the problem after reviewing trade statistics.

Mr. Dick Rootham of the EPD's solid waste group said the department was looking into the trade, but hoped to introduce controls later this year on all waste imports into Hong Kong.

"Although we can control trade in waste, one of the exceptions is when the material is re-used. Waste for recycling is one thing we'll be including in amendments to the Waste Disposal Ordinance," he said, although he could not say what those controls would be.

About half of the imported plastic waste, which includes polyethylene, polystyrene, polyvinylchloride and other plastic products, stays in Hong Kong and the rest is re-exported almost entirely to China.

Hong Kong also exports plastic waste generated here—about 207,000 tonnes last year—mostly to China.

Ms. Ann Leonard is investigating the trade on behalf of Greenpeace's international waste trade project, and

returned to Washington last week after visiting recycling factories in Hong Kong, China, the Philippines and Indonesia.

"We're concerned about it because we don't want to add to disposal problems in other countries and also because recycling plastic is encouraging plastic production," she said.

"It's duping the public because you can't bury plastic and you can't burn it, and just because it's recycled doesn't mean it's green or safe. The best thing to do is not to use so much plastic."

The factories used the scrap to make such things as toys, shoe soles and rubber thongs, but in the process workers and the environment were endangered.

For instance, in an Indonesian factory Ms. Leonard saw children as young as six sorting through bags containing the residue of what appeared to be pesticides, and ending up covered in it. Pesticides can be toxic.

The recycling process also emitted strong fumes and created contaminated waste water, and hot melted plastic splashed out of factory vats posing a danger to workers, she said.

The trade also created waste disposal problems for host countries. An Indonesian factory manager told her that up to 40 percent of the imported plastic was not suitable for recycling.

The new director of Friends of the Earth, Mr. Peter Illig, said recycling was an industrial process and inevitably created emissions, and this had to be balanced against the benefit of re-using waste.

"China probably imports it because it creates jobs and money. That's definitely one of the big motivating factors, but you need to make sure there's a balance between economic gain and environmental harm," he said.

Ms. Leonard said some Hong Kong operators recycled the plastic in the territory, but many were believed to have re-located factories across the border to such places as Shenzhen, Huizhou, and Nam Kong. They mostly used the territory to store the waste en route to China.

She was unable to pinpoint whether the imported plastic was industrial or consumer waste, but samples from the region's factories would be analysed in the United States.

Ms. Leonard said 88 countries had banned waste imports, including many in Africa and Latin America but none in Asia. The Philippines claims to ban them, but U.S. shippers report sending plastic waste there.

## JAPAN

### Project on Southeast Asia Rain Forest Plantation To Be Launched

OW2902084292 Tokyo KYODO in English 0741 GMT  
29 Feb 92

[Text] Tokyo, Feb. 29 KYODO—Japan will launch a five-year study project in several Southeast Asian countries this year in an attempt to develop the technology needed to create a tropical forest plantation that efficiently absorbs carbon dioxide, Forestry Agency officials said Saturday.

The agency will send a team of experts to the area as early as this fall, the officials said.

Tropical rain forests, with their active photosynthesis process, absorb carbon dioxide from the atmosphere faster than either broadleaf or coniferous forests, they said.

During the project, experts will study tropical forests in five Southeast Asian countries, collecting data needed to create an ideal carbon dioxide-reducing forest, the officials said. The data will be gathered by studying tree types and the number of trees in a given area, as well as fertilizers and thinning methods, they said.

Researchers say large concentrations of carbon dioxide in the atmosphere can trap solar-generated heat radiating from the earth's surface, leading to the so-called greenhouse effect which increases global temperatures.

### Agency Considers Emission Controls for Ships by 1995

OW0903034992 Tokyo KYODO in English 0312 GMT  
9 Mar 92

[Text] Tokyo, March 9 (KYODO)—The Environment Agency has decided to draw up a plan within three years for emission controls on Japanese-registered ships as part of the global battle against air pollution, agency officials said Monday.

The agency took the decision because the International Maritime Organization (IMO) is expected to incorporate provisions on emission control of ship engines in 1995 in the International Convention on the Prevention of Pollution From Ships, the officials said. Currently, emissions from ships are overlooked worldwide although nitrogen oxide from ships' engines is estimated to amount as much as some 7 percent of the total global discharge of the pollutant, they said. The IMO aims to reduce the nitrogen oxide emissions from maritime vessels by 30 percent under the proposed regulations, they said.

Japanese-registered ships bigger than five tons numbered some 30,000 as of the end of 1990. Transport Ministry statistics show. Ships mostly use diesel engines and the

driving units of some large diesel-powered ships are 100 times more powerful than the engine of a 10-ton truck, the officials said.

The agency is planning to start a basic data study of arrivals and departures at ports nationwide, the extent of air pollution at each port, the kinds of fuel used, fuel consumption, and emissions from ships, they said.

### MITI To Seek Drastic Cut in Ozone-Damaging Chemical

OW1203091792 Tokyo KYODO in English 0859 GMT  
12 Mar 92

[Text] Tokyo, March 12 (KYODO)—The Ministry of International Trade and Industry (MITI) will ask Japanese companies to redouble efforts to reduce their use of methyl chloroform, one of the chemicals researchers say is destructive to the ozone layer, ministry officials said Thursday.

The ministry will request Japanese manufacturers and importers to cut production and import of the chemical by 15 percent this year from the previous year. Users of the product will also be asked to cut their consumption, the officials said.

The substance, widely used as a cleaner by the automobile as well as machinery and information-related industries, is one of the chemicals to be phased out between 1993 and 2005 under the revised Montreal protocol on substances that deplete the ozone layer.

But since the ozone layer has depleted at such a rapid pace, calls have been mounting for speeding up the phase-out of the damaging product, they said. The Montreal signatories are expected to agree to advance the deadline at their next meeting in November this year.

The Japanese industry, however, has failed to catch up with the international move, and methyl chloroform consumption has been increasing in the past few years, the officials said.

In 1991 the use of the chemical in Japan jumped 15 percent from 1989 to 200,000 tons, making Japan the second-largest consumer of the product in the world following the United States.

The sluggish reduction is partly due to technological difficulties in developing substitute chemicals, the officials said.

They also pointed out that most users are small and medium-scale companies, a major factor that is hampering the phase-out.

**Prime Minister Miyazawa Likely To Attend Earth Summit***OW0704140192 Tokyo KYODO in English 1350 GMT 7 Apr 92*

[Text] Tokyo, April 7 (KYODO)—Prime Minister Kiichi Miyazawa is likely to attend the Earth Summit to be held in June in Rio de Janeiro, Brazil, sources close to Miyazawa said Tuesday. Miyazawa's attendance at the Earth Summit is complicated by the fact that it coincides with the final days of the Diet session as well as the planned attendance of former Prime Minister Noboru Takeshita.

A source close to the prime minister said Miyazawa's round trip to Brazil would take at least one week from his regular schedule, necessitating a departure from Japan on about June 10.

In answer to questions in the Diet and on other occasions, Miyazawa has said he "would like to go if the schedule permits."

But a source within the governing Liberal Democratic Party said recently that opinion now favors Takeshita's attendance during the first half of the summit and Miyazawa's attendance during the second half.

The heads of many nations will gather for the final days of the Earth Summit on June 13 and 14 to participate in formal discussion and the signing of a resolution on environmental protection.

A growing number of party members also sense that the environment will become a major issue at the next House of Representatives election and party executives now strongly favor Miyazawa attending the Earth Summit.

Miyazawa made his wish to attend the summit known during a meeting with Environment Agency chief Shozaburo Nakamura on Tuesday afternoon during which he directed Nakamura to organize a cabinet meeting to discuss global environmental issues.

The "global environmental cabinet" meeting is likely to be held shortly after the May "Golden Week" holiday season, sources said.

Nakamura met Miyazawa to report on progress for preparations for the June Earth Summit, officially known as the United Nations Conference on the Environment and Development (UNCED), as well as for the April 15-17 Eminent Persons' Meeting on financing global environment and development in Tokyo.

The Eminent Persons' Meeting, cohosted by Takeshita, will bring together about 30 former presidents and other eminent people to draw up a set of global environmental clean-up financing proposals for presentation to UNCED.

**MALAYSIA****Timber Species Emplacement Opposed***BK2902140692 Kuala Lumpur Radio Malaysia Network in English 1330 GMT 29 Feb 92*

[Text] Malaysia has voiced its opposition to a proposal to emplace two tropical timber species, Merbau and Ramin, under the Convention of International Trade in Endangered Species of Wild Fauna and Flora, CITES. A CITES meeting will be held in Tokyo, Japan next week to discuss the emplacement of the species under the Appendix 2 of the CITES treaty.

The Minister of International Trade and Industry Datuk Sri Rafidah Aziz said this will mean that the two types of timber will be placed among the endangered species that will require monitoring before they can be imported into developed countries. She told newsmen this after opening a gems exhibition in the federal capital.

Datuk Seri Rafidah said Merbau and Ramin were important export items among developing countries.

**Minister Previews Earth Summit Opportunities***BK2603075892 Kuala Lumpur BERNAMA in English 0501 GMT 26 Mar 92*

[Text] Kuala Lumpur, March 26 (OANA-BERNAMA)—The earth summit in Brazil in June is an ideal opportunity to act decisively on the environment without forgetting the necessity of development, Minister of Science, Technology, and Environment Law Hieng Ding said Thursday.

The summit or United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro is also an opportunity to act decisively to protect the rights of future generations without forgetting the rights of the present generation, he added.

However, the opportunity would be squandered if, at Rio, those who had destroyed their own environment, chastised those who had not, he told the fourth and final session of UNCED's preparatory committee at the United Nations in New York. The text of his speech was released here.

He said: "Indeed, it would be a tragedy if UNCED were to degenerate into an occasion for finger-pointing."

Malaysia, like other countries, wanted the outcome of Rio to be balanced and comprehensive, he added.

Law said there must be positive movement on all issues, not merely those of interest to certain groups.

"We must not preoccupy ourselves with environmental issues as this (UNCED) is a conference on environment and development," he added.

As such, the conference must also call upon the North to forge an alliance to eradicate poverty, hunger, and disease in the South while addressing unsustainable lifestyles in the North.

He said the South risked repeating the mistakes of the North if resource limitations and inequities in the international economic system were not resolved on an urgent and priority basis.

Therefore, he added, Malaysia continued to maintain that whatever the obstacles, UNCED in Rio must result in formulating:

"A Rio declaration on environment and development,

"An action plan with assured and predictable financial underpinning,

"Agreements on climate change and biological diversity,

"Clear and specific commitments of the North on financial resources, technology transfer, and a supportive international system,

"Statement of principles on forests, and

"Appropriate institutional framework.

Law said Malaysia had called for a comprehensive approach to ensure that at least 30 percent of the land area of the earth should be green by the end of the century.

The existing global forest cover of 27.6 percent needed to be increased at an average of 0.3 percent a year to reach the target by the year 2000.

Some parts of the world like the Oceania, Central America, South America, Africa, the former USSR, and Southeast Asia had already exceeded the target.

"But there is a list of countries which are not only below the 30 percent line for various reasons, but which are also in a position to play a bigger greening role not only at their national level but beyond," he said.

The countries were Australia which has 5.5 percent of its land area under forest cover, Britain (8.3 percent), the Netherlands (9 percent), Denmark (12 percent), the United States (21.3 percent), Switzerland (25 percent), France (25.5 percent), and Norway (27 percent).

## TAIWAN

### Delegation To Attend Rio-92: International Task Force To Be Formed

OW2802110892 Taipei CNA in English 0808 GMT  
28 Feb 92

[Text] Taipei, Feb. 28 (CNA)—The cabinet has decided to form an ad hoc task force to handle international environmental protection affairs.

The group will be composed of officials from various government bodies, covering the Council of Agriculture, the Foreign and Economic Affairs Ministries, in addition to the Central Weather Bureau and the Environmental Protection Administration (EPA).

Officials of the governmental bodies met at the EPA Thursday to discuss draft regulations governing the establishment of the task force, EPA Deputy Administrator Chen Lung-chi said.

Chen stressed that the ad hoc body is responding to worldwide efforts to save people from hazards resulting from damage to the earth's ozone layers.

Chen added that a delegation from the Republic of China will attend an "Earth Summit" on the protection of global environment slated for June in Brazil.

### Government Wants To Join Global Environmental Efforts

OW0303093092 Taipei CNA in English 0741 GMT  
3 Mar 92

[Text] Taipei, March 3 (CNA)—The Republic of China [ROC] wants to join international environmental protection organizations, a cabinet official said Monday.

Chao shao-kang, director general of the Environmental Protection Administration (EPA), stressed that the Republic of China is willing to abide by international rules governing environmental protection.

Reporting on the Republic of China's environmental protection policy to a Kuomintang meeting, Chao said the government will follow international conventions even though it is not a signatory to any treaty banning the use of ozone-depleting chlorofluorocarbons (CFC).

The government has been seeking to join the Montreal Protocol which mandates gradual reduction in the use of CFC, but Communist China has been blocking Taiwan's entry, Chao said.

If the Republic of China cannot become a contracting party to the Montreal Protocol, "we hope we will be regarded as one" and will not be sanctioned for failing to implement the accord, he added.

Another alternative for the ROC is to sign bilateral agreements with trading partners indicating the ROC's intention to honor international rules, the EPA chief said.

During an earlier interview, Chao said the Republic of China has no choice but to tighten controls over the use of CFC and to seek a substitute for the polluting product.

"We must either take active action to protect the global environment or take passive action to avoid trade sanctions," he reasoned.

He did not mince words when he admired other countries which have proposed advancing the dates for banning the use of CFC in order to maintain the earth's ecological balance.

Chao forecast that controls on globe-warming carbon dioxide and acid rain-causing sulfur dioxide will also be strengthened in the near future.

The global regulations mean environmental protection is not a problem for one country or one region alone, he said. "If we don't move, we will be forced to," he added.

He confirmed that the Executive Yuan will set up a supra-ministerial task force to deal with global environmental protection affairs.

Besides playing an active role in the task force, Chao said the EPA will continue to improve the domestic environment.

## THAILAND

### Provisions of National Environmental Law Outlined

92WN0253A Bangkok MATICHON in Thai  
5 Jan 92 p 8

[Text] Because this provisional government has a policy of solving the country's environmental problems in a more efficient manner, during the past 10 months, the committee responsible for drafting the new environmental protection act has been working quickly in order to promulgate this law as soon as possible. This draft law has already been approved by the Office of the Juridical Council. The only drafts left to be completed are the draft act on developing the ministries, bureaus, and departments and the draft act on conferring powers and duties. Once these two draft acts have been completed, the acts will be sent to the National Legislative Assembly for approval and promulgation.

Looking at the Environmental Protection Act drafted by the draft committee in greater detail, it can be seen that this act will give power to the newly created environmental units, that is, the Pollution Control Department, the Office of Policy and Planning, and the Department of Environmental Promotion and Development, which will replace the Office of the National Environmental Board. They will be responsible for monitoring and controlling things in order to reduce the country's environmental problems in accord with the Seventh National Economic and Social Development Plan.

This act stipulates the role of the new National Environmental Board [NEB]. It will have the power to make decisions on policy matters. Instead of the deputy prime minister, the chairman of the NEB will be the prime minister. The deputy prime minister and the minister of Science, Technology, and Energy will serve as deputy chairmen. The ministers of the ministries concerned will be members. Thus, this new National Environmental

Board will have the powers and duties of an environmental cabinet. It will have the power to formulate national environmental policies and plans. Besides this, this board will have the power to promote investment aimed at solving environmental problems, which will put it on a level with the Board of Investment (BOI).

This law stipulates that the environmental administrative system must be a system in which more power is given to the various areas of the country instead of being concentrated in Bangkok. This can be done by having each of the provincial governors formulate a plan to solve the environmental problems in their provinces. They will then submit their plans to Bangkok, where the National Environmental Board will consider them in conjunction with the Committee To Administer the Environmental Fund. If more money is needed to implement a plan, consideration will be given to allotting budget funds as appropriate.

As for the roles and powers of the three new departments that will be established in place of the Office of the National Environmental Board, this new law states that these departments will be responsible for activities in general. The Pollution Control Department will be responsible for monitoring the country's pollution problems, including air, noise, water, and other forms of pollution. A pollution control committee will be formed. This committee will be an operations-level committee. The chairman and vice chairman of this committee will be the minister of science and the undersecretary of science respectively. The directors-general of departments from the ministries concerned will serve as committee members. The committee will be responsible for coordinating things with the ministries concerned in order to ensure that the plans formulated to solve the pollution problems are all in accord with each other and to reduce overlapping among the laws.

This law stipulates comprehensive and strict criteria for controlling pollution. It provides a clear definition of sources of pollution. If someone causes pollution, that person is responsible for paying for the expenses incurred in cleaning up the pollution.

Besides this, the law stipulates which activities must file reports on environmental effects and hire engineering companies to design pollution control or eradication systems and to monitor the use of the pollution control equipment.

As for the penalties that can be imposed on the consulting engineering companies that ignore their duties or that engage in corruption, the law states that their operating license can be revoked. If it is found that the owner of the company was engaged in corruption and failed to keep the pollution control equipment in operation, he can be fined up to four times the amount that he would have paid if the system had been kept in operation. The fine will be imposed daily until the system is put into operation.

As for those who own small businesses, the law states that such business can choose one of two methods. They can either install their own small pollution control system, or they can use the waste control facilities built by the government. If they decide to use the public waste control system, they will have to pay a user fee. The laws state that a decree must be issued stipulating the fee rate and who must pay the service fee. This must be based on the income of the communities in order to ensure that the owners of small businesses are treated fairly.

The Office of Environmental Policy and Planning will be responsible for formulating lines of action and plans to solve the country's environmental problems. It will also consider the suitability of the provincial environmental plans. If it is felt that there is something that the government can't do, the private sector will be allowed to take action instead. The duty of the Office of Policy and Planning is to monitor things to ensure that things are done in accord with the plans. The Department of Environmental Promotion and Development will be responsible for restoring the environment in places that have environmental problems. It will cooperate more and more with the private sector in restoring the environment.

Besides giving powers to these three departments, this law calls for the establishment of a Committee to Administer the Environmental Fund. The chairman of this committee will be the undersecretary of science. Members include the secretary general of the Development Council, the director of the Bureau of the Budget, the directors-general of departments in the ministries concerned, and the governor of Bangkok.

This environmental fund will serve as a source of support funds. Money from the fund will be given to people who want to use the money to build pollution control or eradication systems. Money will be given in one of two forms. One is giving grants. Those entitled to receive support funds from this fund include various government units both in Bangkok and in the localities, state enterprises, and the various departments concerned or units that want to participate in building their own pollution control systems.

The other form is to provide loans. This will give people in the private sector and the owners of small businesses who have formed groups and implemented projects to build pollution control systems a chance to borrow money from the fund. Both forms require clear and reasonable projects, which will be considered by the fund committee.

This law states that the establishment of this environmental fund is to be monitored by the Ministry of Finance. The director-general of the Comptroller-General's Department will be in charge of things. Loan requests will be handled by different units. That is, requests by industrial plants will be considered by the industrial council. Requests by non-industrial commercial businesses such as hotels will be considered by the commercial banks.

The law also contains sections on the rights and duties of the people. It states that all people have rights and duties in protecting the environment. They have the right to ask the government for data and information on the environment. The government must promote keeping the people informed about such matters.

This new law also recognizes private development organizations that are active on environmental issues. It states that they must register with the government so that they carry on activities in cooperation with the people with a clear role and in accord with the law. After they have registered, they will have the right to receive support from the government. They will be eligible to receive financial support and will be entitled to receive legal aid if legal problems arise.

The above are the important contents of the draft of the National Environmental Protection Act that will soon be submitted to the National Legislative Assembly for consideration. It is hoped that this will be approved, because once this new act is promulgated, it will strengthen the "claws" of the Office of the National Environmental Board, which will be divided into three new departments. And this will end people's charges that the Office of the National Environmental Board is just a "paper tiger."

#### **Mr. Phanat Thatniyanon, Member of the Committee To Draft the Environmental Protection Act**

The old law was just a worthless scrap of paper, because it did not have the power to compel people to adhere to the standards set by the Office of the National Environmental Board. This new law will cover the division of powers and duties, the penalties for violating the law, and the rights of the people.

This new law can be divided into sections. The first section concerns improving organization. Three new departments will be formed to replace the present Office of the National Environmental Board. The three new divisions are the Pollution Control Department, the Office of Policy and Planning, and the Department of Environmental Promotion and Development. This law clearly systematizes the powers and duties of the departments in order to improve the efficiency of their work. The present Office of the National Environmental Board, which lacks the power to make decisions, will be upgraded to the level of an environmental cabinet so that it has the power to make decisions. A Pollution Control Committee will be established, too.

The second section concerns revising the laws on pollution to make them stricter. This law clearly defines sources of pollution so that "those who cause pollution must be the ones to pay for cleaning up the pollution." This section also stipulates that the owners of large businesses whose activities affect the environment must

hire consulting engineering companies to issue reports on the effects, design a pollution control system, and monitor things to ensure that the company keeps the system in operation on a continuous basis. If the engineering company engages in corruption, it can be punished. That is, it may have its operating license revoked. As for the owner of the business, if he fails to keep the pollution control system in operation, he can be fined four times the amount that it would have cost to keep the system in operation. He will be fined daily until the system is put into operation. As for small businessmen, this law states that they can choose to build their own waste control system or use the waste control facility built by the government, for which they would have to pay a fee.

The third section concerns the establishment of an environmental and quality of life fund. The Ministry of Finance will be in charge of this fund. A fund administrative committee will be the unit that authorizes granting loans and giving grants. If an industrial plant requests funds in order to invest in the construction of a waste control system, the request will be considered by the Industrial Council. If such a request is made by a commercial business, a commercial bank will consider the request. Those who have the right to request a loan or grant from the fund include central and regional government units, state enterprises, and ministries, bureaus, and departments that want to invest in building their own waste control systems. This also includes private companies that have joined together to build a joint waste control system.

The fourth section deals with the people. That is, this law discusses the rights and duties of the people in helping to monitor and protect the environment. They have the right to receive information on environmental matters. The government must ensure that the people are kept informed. Also, the law stipulates that private development organizations that are involved with the environment and natural resources must register so that they can play a clear role under the law. This will enable these private development organizations to request help from the government. They can ask the government to facilitate things, provide support funds, and serve as a legal adviser. This is the first law to clearly recognize the role of the private sector. Moreover, this will lead to the promulgation of other laws of a similar nature.

However, this law has not yet been approved by the National Legislative Assembly. Thus, it can't be said that this law will definitely be promulgated. But I don't see any problems, because this law has been drafted in order to enable all the units that are working to solve the environmental problems to make maximum use of their powers. If the existing laws can be used fully, this new law will not affect anything. But if the existing laws can't be used, this new law will be used.

### **Agriculture Official Blames Animal Smugglers for CITES Trade Ban**

*BK0603025392 Bangkok BANGKOK POST in English  
6 Mar 92 p 2*

[Excerpt] Kyoto, Japan—Animal smugglers in Thailand are to blame for a trade ban imposed on Thailand by the Convention on International Trade of Endangered Species (CITES), Deputy Permanent Secretary for Agriculture Phong Leng-ee said yesterday.

The ban, imposed last April, has tarnished the image of the country, he said.

Mr. Phong, who led a Thai delegation to the Eighth CITES meeting in Kyoto, said he has tried his best to tell delegates that Thailand has tried to respond to the convention.

Measures taken include amending related laws and the stepping up of efforts to stop the illegal animal trade which appears to have become rampant with Thai animal dealers having connections with foreign dealers.

Failure to follow CITES rules and regulations by Thailand was another factor that led to the ban. Thailand has not submitted the country's annual reports to CITES since 1987 because some obsolete laws prevented officials from complying with the convention.

This made other convention members believe Thailand does not want to honour its commitment.

Police and Customs officials will soon be invited to attend a seminar and make themselves familiar with the convention. The session will be arranged by officials handling implementation of the convention, he said.

The police will be asked to track illegal animal dealing as they have proved more efficient doing so than forestry officials. Illegal ivory and trophy trade has been intercepted recently by the police.

Without cooperation from officials, animal dealers cannot smuggle animals out of the country. Certain people in airlines have also lent a hand, Mr. Phong said.

Although all laws related to the issue will be amended, the officials have to be made aware of the rules of the convention. Representatives of many countries at the meeting said inadequate control results from misunderstanding of the rules, he said.

It may take some time for all amended laws to be fully implemented, he said. Additional rules will also have to be issued in Thailand to help this and to achieve closer cooperation among the authorities concerned. [passage omitted].

## VIETNAM

### **Aid Sought To Clean Up Soil Contaminated by U.S. Military**

*BK2902074292 Hanoi VNA in English 0628 GMT  
29 Feb 92*

[Text] Hanoi, Feb. 29 (VNA)—Vietnam has millions of hectares of soil contaminated by toxic chemicals used by the United States during the war and is seeking international aid to clean up those areas.

A Defense Ministry official, Mr. Nguyen Ngoc Ky, is now seeking such aid at 40-nation conference co-sponsored by the United Nations in Dortmund, Germany, on transforming arms plants for civilian use.

He told the press there on Wednesday that he hoped international cooperation and assistance would be made available to Vietnam to help make contaminated soil usable again.

Mr. Ky said effort had been made to clean up some of the waste at former U.S. bases in southern Vietnam but plants could not grow in many other places.

### **Tri An Hydroelectric Project Watershed Forest Protection System Ratified**

*BK0903143592 Hanoi Voice of Vietnam Network  
in Vietnamese 1430 GMT 7 Mar 92*

[Text] On 5 March 1992, the Council of Ministers chairman issued a decision ratifying the fundamental principles governing the planning of a watershed forest protection system for the Tri An hydroelectric power project site. The watershed forest protection area for the Tri An hydroelectric power project site covers 1.53

million hectares along the Dong Nai River and falls under the administrative boundaries of 21 districts belonging to Lam Dong, Dong Nai, Ninh Thuan, Dac Lac, and Song Be Provinces.

The watershed forest protection system for the Tri An hydroelectric power project site was based on four major development plans, namely the Cat Tien national park development plan, the development plan for the basin of the Da Nhim hydroelectric power plant, the development plan for the basin of the Ham Thuan hydroelectric power plant, and the development plan for the basin of the Tri An hydroelectric power plant.

The Ministry of Forestry shall be the principal organ responsible for conducting an economic-technical feasibility survey and for organizing project implementation once permission has been granted by the authorized echelons. The Ministry of Forestry shall also promulgate watershed forest protection regulations and related guidelines so that the various sectors utilizing land in the areas affected by the watershed forest protection system may know how to implement them.

The people's committees of those provinces with land falling under the watershed forest protection system shall coordinate with the Ministry of Forestry and other sectors concerned in helping with people's resettlement, prevention against indiscriminate forest destruction, and promotion of the people's awareness of the importance of forest protection.

The investment capital needed for the building of the watershed forest protection system shall be drawn from different sources. The state shall provide budget allocations for afforestation and reafforestation and shall also support settled life, settled farming in key watershed forest protection areas based on the approved economic-technical feasibility survey.

## BULGARIA

**Some 650 Enterprises Said To Represent Environmental Threat***AU2502100992 Sofia DUMA in Bulgarian 20 Feb 92  
p 1*

[Vanyo Stoilov report: "Some 650 Enterprises in the Country Are Potential Timebombs"]

[Text] More than 650 enterprises in the country represent potential nuclear, chemical, radiation, seismic, and other threats. At any time they could provide the Permanent Commission on Protecting the Population in time of Disasters and Accidents with a lot of work. There are 370 enterprises that represent a chemical threat for the population. With 113 such enterprises Varna Oblast holds the record in this respect.

The government will be acquainted with these and other figures after its members have studied the report on the activity of the scientific-coordinating council of the Permanent Commission. It includes 97 scientists and experts who have been involved in work to prevent disasters and accidents from seven possible directions. According to its chairman, Senior Scientific Fellow First Degree Iliya Belokonski, some 28 collectives participated in preventive activity last year. The council will report by the end of March and a scientific-technical conference will be held in Sofia on 23 and 24 April to discuss the council's study.

The council's experts investigated the danger represented by the 10,000 tonnes of ammonia stored by the "Neokhim" Company in Dimitrovgrad and advised the citizens of the city they could sleep peacefully. According to their report, the equipment, installed five years ago, is in relatively good shape. The experts recommend new regulations be issued on storing ammonia in quantities larger than 500 tonnes. There will be new inspections but for the time being at least the citizens of Dimitrovgrad do not need to walk around with gas masks at the ready, the scientists say.

**SDS Green Party Becomes Conservative Environmental Party***AU0103201692 Sofia BTA in English 1944 GMT  
1 Mar 92*

[Text] Sofia, March 1 (BTA)—The Green Party within the Union of Democratic Forces (SDS) has renamed itself Conservative Environmental Party, it was decided at today's conference which turned into a Constituent Congress. Thirty-three year old Khristo Biserov, SDS MP, was reelected chairman.

Last summer Mr. Aleksandur Karakachanov, leader of the Green Party, and part of its members split from the SDS because it disagreed with the coalition's decision to

boycott the adoption of the new constitution. Since then the two factions have been engaged in litigation over the name of the party.

At its congress yesterday the Nikola Petkov Movement, which has recently split from the Nikola Petkov Bulgarian Agrarian Party, declared that it would turn into an independent political organization.

**Investigators Survey Damage From Maritsa-Iztok Power Plant Accident***AU0303183092 Sofia BTA in English 1744 GMT  
3 Mar 92*

[Text] Sofia, March 3 (BTA)—A work group comprising representatives of the Civil Defense and the Ministry of the Environment and headed by the minister of the environment, Mr. Valentin Vasilev, studied the effects of the accident at the Maritsa-Iztok Thermal Power Plant as a result of which waste waters escaped into the rivers Suzliyka and Maritsa. The work group flew over the valley of the polluted river in a helicopter, from the power plant to the town of Lyubimets.

BTA received a statement from the Civil Defense which says that the situation in the polluted area is alarming. There is a slight tendency towards improvement but the source of pollution has not yet been eliminated. Laboratory control is being exercised over the chemical composition of the waters of the two rivers and the potable water.

A meeting was held in Khaskovo today which was attended by representatives of the Ministry of the Environment, the Regional Environmental Inspectorate, the Water-Supply and Sewerage Service, the Civil Defense and the managers of the plant. Additional measures for the localization of the accident and the mitigation of its effects were discussed.

Special groups from the Civil Defense and the Ministry of the Environment are monitoring the situation.

Today's "24 Chasa" reported that oil products are still flowing into the Maritsa River. The water's colour is changed all along the river to the border with Turkey. The potable water has not been polluted. Experts say that about 450,000 cubic metres of waste water have escaped into the river. The repairs will take about two months and will cost some 2.5 million leva, not counting the damages inflicted on the environment.

**Council of Ministers Takes Steps To Restructure Lead, Zinc Production***AU1203205592 Sofia BTA in English 1900 GMT  
12 Mar 92*

[Text] Sofia, March 12 (BTA)—At its regular session today the Council of Ministers assigned the Ministry of Industry and Trade to submit within a month a programme on the restructuring of lead and zinc production and mining. The Ministry of Labor and Social Affairs

should propose measures for the reorientation and retraining of the workers at the non-ferrous metals Combined Works in Plovdiv (southern Bulgaria) which will be restructured step by step.

The government decided to close down lead production at the Combined Works near Plovdiv in the summer of 1991 which provoked extreme reactions among the population of this highly-polluted area which raised mutually exclusive demands. With its decision today the government binds the Supervising Council of the Combined Works to reconstruct lead production and to bring it in compliance with all environmental requirements and standards. The annual output of the combined works until their closure should not exceed 32,000 tonnes.

The Ministry of Agriculture is to adopt a programme for adequate plant growing structures in the regions polluted by the non-ferrous metals Combined Works and by the end of the year the ministries of agriculture and of health care are to approve technologies for reclaiming the polluted soil. By the end of May 1992 the Ministry of Health Care is to work out measures for the prophylaxis and treatment of the population in the affected areas.

Today the Council of Ministers adopted a bill on Bulgarian citizenship. The bill takes into account international standards in this field. It accepts the principle of the admissibility of dual nationality and regulates the acquiring of Bulgarian citizenship by origin, place of birth and naturalisation. The bill excludes the possibility of depriving people of Bulgarian citizenship for political reasons. Only a person who has committed a serious offence and is a Bulgarian national by origin can be deprived of his Bulgarian citizenship. The bill provides for the heirs of people deprived of Bulgarian citizenship for political reasons before May 22, 1989 to apply for repealing this decision in order to be able to inherit property confiscated by the state.

At its session today the government approved the stand of the Ministry of the Environment on signing international conventions on the protection and use of transboundary water currents and international lakes and on the transboundary influence of industrial accidents. The drafts of these conventions have been worked out under the aegis of the UN Economic Commission for Europe.

Today the cabinet discussed the report of Foreign Minister Stoyan Ganev on the development of relations with Moldavia and assigned the Foreign Ministry to present the necessary draft documents for an interstate treaty and for the accreditation of two Bulgarian diplomats to the republic.

The government approved today the report of Minister of Industry and Trade Ivan Pushkarov on Bulgaria's stand for the 14th Session of the Bulgaria-German Commission For Economic, Industrial and Technological Cooperation to be held late this month in Bonn.

## CZECHOSLOVAKIA

### Skoda Plans To Construct Nuclear Plant With Siemens Opposed

LD0203202692 Prague CSTK in English 1330 GMT  
29 Feb 92

[Text] Prague, Feb 29 (CSTK)—Czech environmentalists are psyching up for a duel with the German giant Siemens over the possible construction of a nuclear heating plant, a scene that has been played out many times already in Western Europe but is still new to Czechoslovakia.

Today's issue of the Czech trade-union daily "PRACE" carries an article called "The Children of the Earth versus Siemens", in which Katerina Jankova sketches the growing conflict over rumours that Siemens plans to cooperate with Skoda in the building of a nuclear heating plant in the West Bohemian town of Plzen (population 170,000).

"Siemens has gotten into a big game and has invested (a lot) of money", Miroslav Suta of the Czech environmentalist group Children of the Earth told a press conference last week.

"The town could find itself under great pressure if it allows Siemens into Skoda", he said. "The Deputy Mayor Zdenek Prosek has assured the public several times that the town backed out of the construction, but we are still concerned".

According to Jankova, the Germans were offering Skoda 100 million marks for the project.

"After the initial talks", said Frantisek Kudej, a spokesman for Skoda, "both sides arrived at the opinion that a study of the technical resolution would be prepared".

In May 1991 Siemens gave a copy of the study to the Plzen mayor's office at which point Siemens's involvement in the project came to an end, according to Kudej. They received no orders concerning the construction of the heating plant and were not invited to make any bids.

Soon after, at the initiative of Skoda representatives and concerned university students and professors, a debate on nuclear heating began in the local press. Some of the articles, Kudej said, presented the issue as if the nuclear option had already been decided on.

The German chapter of Greenpeace, an international environmentalist group known for its activism against nuclear power, then entered the fray, writing in its publications that Siemens and Skoda were planning to build a nuclear reactor.

"(That) is neither acceptable nor feasible given the high costs (it would involve)", Kudej said.

Jankova describes the environmentalists' opposition so far as fighting "against a sandbox in the Sahara". The

cause, she says, is a lack of information provided to the public by the Plzen town hall and the extension of the original deadline set for approving a new heating plan for the town, which all parties agree is necessary.

"As Deputy Mayor Prosek assured me, the town hall will definitely not give in to pressure from Skoda", Jankova writes.

"When we consider that none even exists", she concludes, "one can assume that Czechoslovakia will not become an experimental country for the construction of Siemens nuclear heating plants".

## HUNGARY

### Environment Minister on Controversy Over Bos-Nagymaros River Barrage

AU1303094892 Budapest MAGYAR HIRLAP  
in Hungarian 11 Mar 92 p 5

["O.S."-signed interview with Environmental Protection Minister Sandor K. Keresztes; place and date not given: "A Solution Without Emotions"]

[Text] After a meeting held in Gyor on 9 March, Sandor Keresztes declared that we need a compromise technical solution for the river barrage at Bos because, otherwise, the Szigetkoz area will be destroyed. The Danube Circle called upon Sandor Keresztes to resign. Sandor Keresztes said that a politician had to get used to being attacked from various sides, but these were politician's, rather than expert statements.

[MAGYAR HIRLAP] What do you mean by a compromise technical solution?

[Keresztes] The CSFR informed us in an informal way last year about ways of finding alternative technical solutions by rebuilding or dismantling the project. In my professional opinion, among these alternatives there is one that implies minimal ecological risk, and thus is not a compromise and, at the same time, is a technical solution that would hopefully satisfy the Slovaks. I think it is very important to jointly examine this alternative, if the Slovak side also agrees to do this.

[MAGYAR HIRLAP] Does this duality disturb you, namely that, while you opposed the river barrage project before, the task has now fallen in your lap, as a decision-making official?

[Keresztes] Although I sympathized with the anti-Bos movements, I have never been a member of these organizations. I dealt with this problem as an independent expert and I prepared the regional plan for the Szigetkoz area at that time. Perhaps I am in an advantageous position in this respect, because I am not bound by emotions, but have a thorough knowledge of the issue. Therefore, I dare say that we could find a solution if we cut out emotions and if both sides sought existing

technological solutions from sober political considerations. However, one thing should be made clear here too, and I have differences of views with the old Danube Circle in this respect, namely that, in my opinion, the dismantling of the project is not a solution in itself because this does not solve earlier ecological problems. This is where we have differences of opinion. We have similar goals, but our methods are different.

[MAGYAR HIRLAP] What is your opinion about the Danube Circle's demand for your resignation?

[Keresztes] As an environmental protection minister, my job is to solve this problem in some way. However, the task of the environmental movements is to try to impose their opinion on the government by means of declarations and demonstrations. They should not be blamed for this because this is their job.

## POLAND

### Possibility of Environmental Disasters at Industrial Facilities Explored

92WN0276A Poznan WPROST in Polish  
No 2, 12 Jan 92 pp 59-61

[Article by Janusz Michalak: "Any Day"]

[Text] If an accident similar to the one that happened in Chernobyl occurred tomorrow across our eastern border Poland would be as helpless as it was in 1986.

"The blast will equal the explosion of a small nuclear bomb. More than 40,000 people will die. (...) Several seconds after the first explosion, buildings will fall apart within a radius of 1,000 meters, at Kosciuszko, Poznanska, and Zatorze Streets. A military train carrying one of the groups of Soviet army soldiers and weapons withdrawn from Germany will be blown apart. Artillery rounds stored in cars will explode.

"Virtually at the same time, a wall of fire will reach one of six spherical tanks in which 6 million liters of liquefied gas are stored.

### Detonations of the Remaining Metal Spheres Will Merge Into One Mighty Rumble

"A wave of burning air will move along Cieszkowski Street, toward new residential developments. It will engulf all of Swarzedz and Antoninek. It will reach gas stations along the Warsaw highway...."

This scenario of an explosion at the gas cylinder filling plant in Jasin near Swarzedz, described in apocalyptic terms by a tabloid journalist, is not at all an impossibility.

Colonel Stanislaw Sladkowski from the Academy of National Defense in Warsaw stated: "According to current data, about 3,500 industrial facilities exist in Poland which contain toxic industrial compounds. Two hundred

facilities from among them pose a special risk, and between 50 and 70 are the greatest threat."

They include the Chemical Enterprise in Police (which stores 18,000 tons of ammonia), the Chemitex-Stilon Synthetic Fiber Enterprise in Gorzow Wielkopolski (200 tons of ammonia), the Odra Organic Chemistry Enterprise in Brzeg Dolny (1,500 tons of chlorine), the Niedomice Pulp Enterprise (270 tons of chlorine), the Organika-Sarzyna Chemical Enterprise (1,500 tons of chlorine), an enterprise in Wloclawek (1,000 tons of chlorine and 18,000 tons of ammonia), and an enterprise in Bydgoszcz (600 tons of chlorine).

The possibility of an accident at any of these installations, at any time, cannot be ruled out. If we take into account the possibility of the spread of these compounds through the air, the danger zone will include two-thirds of the area of Poland populated by 20 to 25 million people. Colonel Sladkowski said: "We cannot fail to notice this problem, or neglect it."

This is associated with another serious problem—that of transporting the compounds in question. Major Urbanski from Civil Defense at Zagorze, in Poznan, maintained: "Such hauls are made on the sly, most frequently through the downtown areas of large cities. If such trucks must travel through a city, they should be properly marked, and competent services should be notified in advance. Meanwhile, these guidelines are commonly violated."

We do not have railway or highway bypasses. The ones that exist are overloaded. For example, 40 tankers with gas travel on public roads every day in Wroclaw Voivodship. How many such motor vehicles leave Katowice Voivodship?

The condition of tankers is, for the most part, atrocious. Mandatory technical inspection requirements do not apply to old tankers at all. Those who deal with these tank cars maintain that almost one-half of them should be scrapped.

A chief of Civil Defense in a large city outlined a hypothetical course of events for the benefit of a journalist. It is winter; the wind is blowing; at a station next to residential developments with many thousands of inhabitants, a tank car with several dozen tons of chlorine is being moved. Suddenly, there is an accident, a so-called loss of sealing in the tank car. Railroad sirens wail, and the police, firefighters, ambulance services, and local authorities are notified.

Civil Defense services may go into action 20 minutes later at the earliest. The firefighters could possibly report to the scene in half an hour, together with a chemical accident rescue station. Most likely, they will have to wait several hours before one of the seven specialized chemical accident crews in the country arrives.

#### **Meanwhile, Toxic Gas Vapors Reach Residential Developments Within Several Minutes**

The health, and even lives, of several thousand people may be lost before any rescue operation begins.

Our ability to defend ourselves against potential threats is strikingly negligible. For example, it is estimated that in the cities, half of the inhabitants would not be able to get a gas mask. The weakest ones—retirees, the unemployed, and children—have the least opportunity to get these "luxuries" because the bulk of such equipment is stored at enterprises. The situation is the same with shelters. Most of them are now used as warehouses by private companies. For example, only 35 to 40 percent of Wroclaw's residents will have an opportunity to find a place in the shelters in case of urgent need. The situation is similar in other cities.

The condition of Civil Defense is alarmingly poor. Until recently, it engaged in "organizing defense against a NATO attack," and most frequently was a cluster of former military officers who were accumulating time toward their retirement in cushy jobs. To this day, Civil Defense has not been adequately reorganized.

Actually, they started paying attention to the need for such safeguards for the first time.

#### **After the Disaster at the Chernobyl Nuclear Plant**

However, as we were told at the National Atomic Energy Agency, the approach to organizing a system for detecting and preventing contamination in Western countries has changed fundamentally since that time, whereas virtually nothing has changed in the practices of our country. Actually, no essential decisions have been made.

Meanwhile, in the former Soviet Union alone, four other nuclear power plants with reactors of the same type which had the accident in Chernobyl are in operation. This is to say nothing of the threat posed by Soviet nuclear weapons. Against the background of such facts, the view of specialists from the National Atomic Energy Agency is stunning: If a nuclear explosion in the East occurred again tomorrow, Poland would be as helpless as in 1986. It would be helpless in the face of any other large accident of this type anyway.

#### **Cases of Industrial Accidents in the World and in Poland During Which Toxic Agents Were Released Into the Environment**

[passage omitted]

**1987. Zgierz, Poland**—loss of sealing in a tank with a nitro compound. No fatalities. [passage omitted]

**1988. Lodz, Poland**—a hydrogen sulfide leak at an industrial enterprise. Three fatalities, about 60 injuries.

**Skwierzyna, Poland**—a fire and combustion of sodium hyposulfite, giving off sulfur dioxide. People evacuated from the area around the plant. [passage omitted]

**1989. Bialystok, Poland**—three tank cars with about 2,000 tons [as published] of liquid chlorine derailed. There were no casualties because the toxic agent did not leak. Had the sealing of the tank cars been lost, atmospheric contamination could have spread to regions within a radius reaching to Monki and Grodno.

**Legnica, Poland**—ammonia leaks from a refrigerated storage facility. No casualties.

**Jawor, Poland**—loss of sealing in a tank with sulfur trioxide at the Pollena Household Chemicals Enterprise.

**Wroclaw, Poland**—an accident on Dominican Square. A tanker carrying sulfuric acid lost sealing. A similar accident happened at Podwale, but it involved chlorine.

**1990. Nowy Sacz Voivodship**—a tanker carrying 9,000 liters of gasoline crashed in the valley of Slotwinka brook. The water intake facilities of Krynica, Muszyna, and Nowy Sacz were threatened.

#### Pollution-Related Death Rates in Voivodships Studied

92WN0276B Poznan WPROST in Polish  
No 2, 12 Jan 92 pp 61-62

[Unattributed article: "Black Holes"]

[Text] You will die sooner than anyone else if you live in the following voivodships: Katowice, Szczecin, Legnica, Jelenia Gora, Opole, Lodz, and Bielsko-Biala. The average magnitude of pollution amounted to 16.7 points in these voivodships, whereas the national average comes to 10.9 points. The residents of the following voivodships are going to live the longest: Biala-Podlaska, Bialystok, Lomza, Nowy Sacz, Przemysl, and Skierniewice. The average magnitude of pollution in these voivodships is estimated to be five points. The above is given according to a report prepared by Prof. Stanislaw Mlekodaj from the Institute for Tuberculosis and Lung Diseases in Warsaw and Associate Professor Zenon Piasecki, who studied the connection between the level of deterioration of the natural environment in individual voivodships and the death rates of residents in these voivodships.

The results of the work by Professor Mlekodaj and Associate Professor Piasecki unambiguously prove the unfavorable influence of a deteriorating natural environment on the health status of the people, especially men in the 45- to 64-year-old age bracket. This results in the overall death rate for this population being 21.5 percent higher compared to voivodships in which the degree of destruction of the natural environment is smaller. Given that the number of deaths among young people (between 25 and 44 years of age) was higher in voivodships with a deteriorating natural environment (by 4.1 percent), it turns out that the duration of exposure to the harmful effects of the polluted environment is an unfavorable factor.

Women die before men in voivodships with a deteriorating natural environment. Among women, a greater number of deaths is registered as early as in the 15- to

24-year-old age bracket; it is 4.6 percent higher. In the next age bracket, 25 to 44 years, it grows to 11.3 percent; between 45 and 64 years of age, it reaches 24.8 percent.

The deteriorating environment most often causes death through tumors. The number of deaths for this reason is higher even for the population aged between 15 and 24; this difference amounts to 16.6 percent. In the next age bracket, 25 to 44, the difference increases to 19.3 percent. It reaches 21.6 percent among the population aged 45 to 64, and in the population aged over 64, it comes to 22.4 percent, compared to similar statistics in the voivodships with the lowest degree of deterioration in the natural environment.

In voivodships with a deteriorating natural environment, 13.6 percent more people die of cardiovascular diseases in the 25 to 44 age bracket, and 22.9 percent more in the next bracket, between 45 and 64 years of age. In the remaining brackets, more people die of cardiovascular diseases in the voivodships with a low degree of deterioration.

The virtual absence of substantial differences when comparing the number of deaths resulting from respiratory diseases in the two groups of voivodships is somewhat surprising. It would appear that a deteriorating natural environment should cause a greater number of deaths due to these specific diseases because the people come in contact with particulate matter and gases found in the air primarily through the lungs, and only later through the skin or other anatomical structures. Meanwhile, the results of the study indicated only an insignificant 6.7-percent increase in the death rate in the voivodships with a deteriorating natural environment, and then only among the population in the 45 to 64 age bracket. In other age brackets, more people die because of this in the voivodships with the least affected natural environment.

Environmental deterioration is a powerful influence on increasing the number of deaths caused by gastrointestinal disease. The difference in the death rate amounted to as much as 59.4 percent for the 45 to 64 age bracket in disfavor of the heavily polluted voivodships; among the population over 65, it was 21.4 percent.

More people die as a result of other diseases only in the 45 to 64 age bracket; this difference amounts to 40.3 percent.

#### Deaths in Poland in 1987 (number of deaths and specific statistic per 10,000 population)

Voivodship	Number of Deaths	Deaths per 10,000 Inhabitants
TOTAL	327,653	100.3
1. Warsaw	26,720	97.0
2. Biala Podlaska	3,364	95.6
3. Bialystok	7,072	92.8
4. Bielsko Biala	8,609	99.6
5. Bydgoszcz	10,969	102.1

**Deaths in Poland in 1987 (number of deaths and specific statistic per 10,000 population) (Continued)**

Voivodship	Number of Deaths	Deaths per 10,000 Inhabitants
6. Chelm	2,567	93.9
7. Ciechanow	4,696	104.8
8. Czestochowa	8,737	100.5
9. Elblag	4,014	103.0
10. Gdansk	12,943	100.9
11. Gorzow	4,184	99.6
12. Jelenia Gora	4,699	98.8
13. Kalisz	7,571	99.0
14. Katowice	39,575	111.3
15. Kielce	11,985	95.8
16. Konin	4,812	99.3
17. Koszalin	3,951	97.5
18. Krakow City	12,303	96.3
19. Krosno	4,677	96.2
20. Legnica	3,664	96.1
21. Leszno	4,070	103.2
22. Lublin	10,048	95.8
23. Lomza	3,695	95.5
24. Lodz	14,463	105.4
25. Nowy Sacz	6,425	99.7
26. Olsztyn	5,615	95.9
27. Opole	9,358	102.7
28. Ostroleka	3,920	97.6
29. Pila	4,524	105.8
30. Piotrkow	7,029	99.1
31. Plock	5,520	101.1
32. Poznan	14,097	103.4
33. Przemysl	4,453	110.8
34. Radom	7,682	98.3

**Deaths in Poland in 1987 (number of deaths and specific statistic per 10,000 population) (Continued)**

Voivodship	Number of Deaths	Deaths per 10,000 Inhabitants
35. Rzeszow	6,798	97.0
36. Siedlce	7,150	96.5
37. Sieradz	4,765	97.3
38. Skierniewice	4,599	99.4
39. Slupsk	3,176	96.2
40. Suwalki	3,820	95.0
41. Szczecin	7,799	98.7
42. Tarnobrzeg	6,273	97.0
43. Tarnow	6,452	97.1
44. Torun	6,544	105.7
45. Walbrzych	7,018	99.1
46. Wloclawek	4,577	103.0
47. Wroclaw	9,773	92.1
48. Zamosc	5,841	97.7
49. Zielona Gora	5,589	96.7

## ROMANIA

### Environment Minister To Run for President

AU0403174592 Bucharest ROMANIA LIBERA  
in Romanian 27 Feb 92 p 3

[C.V. signed report: "A New Candidate for Presidency"]

[Text] Mr. Marcian Bleahu, environment minister and senator of the Ecological Movement of Romania, affirmed that he will run for the position of president of Romania in the upcoming general elections. The statement was made during the conference of the National Foundation of Scientific Trips and Expeditions, which was held on 23 February in the town of Sfintu Gheorghe, and the ARPress reporter has learned the above from one of the participants in the conference.

**BRAZIL****Environment Secretary, Foreign Minister Have Opposing Ideas for Eco-92**

PY0403214892 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 2 Mar 92 p 35

[Unattributed report on ideas by Secretary of Environment Jose Lutzenberger and Foreign Minister Francisco Rezek on UN Conference on Environment and Development]

[Text] This is what Secretary Lutzenberger believes:

1. The countries that have forests must be reimbursed for losses resulting from failure to exploit them. (The Presidency of the Republic Secretariat of Environment, Semam, not only defends this idea, but believes the reimbursement could be done through an international fund for conservation.)
2. Brazil may be favored if the forests and climatic changes issues are discussed jointly. (Brazil could be rewarded for conserving the forest and preventing emission of CO<sub>2</sub>, carbon dioxide, which is the main cause of the hothouse effect.)
3. Brazil should insist that an international law on forests be drafted as soon as possible. (The Semam states that Brazil should give up its current defensive attitude regarding forests.)
4. All possible efforts should be made to establish precise goals on deforestation and reforestation. (Otherwise, the Semam states, commitments made by the countries will be mere rhetoric.)
5. Brazil must insist that the countries immediately draft plans for the development of their forests. (This position would have a political meaning, because it would make Brazil the leading tropical country in this aspect.)

This is what Minister Rezek believes:

1. Countries that have forests should not be paid by the developed countries to preserve them. (Itamaraty does not want Brazil to be paid not to develop the Amazon region. Defense of Brazilian sovereignty over the region is behind this position.)
2. The forests issue should not be discussed with climatic changes. (The developed countries are responsible for most of the gas emissions causing the hothouse effect. The countries that have forests also contribute to that through deforestation, but in smaller proportions. Itamaraty fears that, by linking one issue to the other, the wealthy countries deny responsibility and hold the developing countries as the only ones responsible for the problem.)
3. This is not the appropriate moment to create international rules on forests. (Itamaraty supports this position, although it states that it always has been in favor of holding an international convention on forests.)

4. Precise goals on reforestation or on deforestation reduction should not be defined. (Itamaraty believes these goals could not be achieved at the moment.)

5. Countries should develop their forests in a rational manner, with flexible deadlines and goals. (Itamaraty believes this is the only way to obtain approval of the document by a large number of countries.)

**Groups React to U.S. Environmentalists Stance on Bush Americas Plan**

PY1303132892 Sao Paulo O ESTADO DE SAO PAULO in Portuguese 5 Mar 92 p 10

[Text] New York—The decision by several U.S. environmental organizations to formally support President Bush's Americas Initiative for the Southern Cone, which was announced some months ago, has prompted an unexpected reaction from their counterparts in Brazil and in some bordering countries. Latin American ecological groups, made up and on many occasions led by former traditionalist leftists, have always viewed the United States with suspicion.

Rubens Harry Born, a 36-year old engineer born in Sao Paulo, told O ESTADO: "There has been no quarrel, but we want these U.S. environmentalists to understand that if we decide to ally ourselves with them we want to be consulted before they make decisions and assume positions that affect us." Born attended the Nongovernmental Organizations (ONG) forum as the Brazilian representative.

"The strong point between rich and poor countries continues to be cooperation," said Henry Acserald, a member of the Brazilian Institute of Social and Economic Analysis based in Rio. Barbara Bramble, international director of the National Wildlife Federation, the major U.S. environmental ONG, said: "We continue to engage in a strategic battle to achieve common objectives." She added: "We have tactical disagreements in our meetings and we shout at each other." Bramble said that this is natural and the strong discussion reflects the tightening of relations among the ONGs. She said: "The tightening of relations began with the evolution of environmental debates on simple matters like the protection of endangered species and the antipollution struggle, on which every one agreed, and evolved into a discussion on the economic aspect of the ecological crisis."

**Rio-92 Starting Date May Be Postponed**

PY1303005692 Brasilia Voz do Brasil Network in Portuguese 2200 GMT 12 Mar 92

[Excerpts] Foreign Minister Francisco Rezek today confirmed that the opening of the UN Conference on Environment and Development [UNCED], or Rio-92, may be postponed two days. He explained that Arab countries have asked for the postponement because 1

June is an important holiday in their countries and this would prevent 40 chiefs of state from attending the Rio-92 opening ceremony. [passage omitted]

An agreement signed between the federal government and the Rio de Janeiro State government ensures resources for the security plan at UNCED, or Rio-92, which is scheduled to be held from 1 to 12 June.

Justice Minister Jarbas Passarinho has signed the document on the federal government's behalf and Rio's Vice Governor Nilo Batista on the state government's behalf. The federal government will assign 719.16 million cruzeiros to the security plan and the state government 215.748 million cruzeiros.

## DOMINICAN REPUBLIC

### Forestry Chief Cites Reforestation Needs

92WN0319A Santo Domingo EL SIGLO in Spanish  
7 Feb 92 p 1

[Article by Wilfredo Polanco]

[Excerpt] The Dominican Republic urgently needs the reforestation of more than 13,000 square kilometers (27 percent) of its area, in order to reestablish its ecological balance. The alarm was sounded last night by Colonel Pedro de Jesus Candelier, the forestry director, in a speech he gave at the Apec University on the role of the State in the conservation of the country's forest areas.

The territorial area of the country is 48,442 square kilometers.

Candelier stated that the country needs to have forest cover on 37 percent of its territory.

He said that according to United Nations Food and Agriculture Organization (FAO) figures, the area of the nation covered by forests came to 69 percent of the total in 1945.

"In just 29 years, this area has been reduced by 67 percent. In other words, by 1974, forests covered only 12 percent of our area, and at the present time, it is estimated that we have only 10 percent in forests," he said.

The forestry director made an urgent appeal for the drafting of a master plan to provide a clear definition of "what we have, what we want, and what we will be!" And he explained that "we are a country in which 56 percent of the territorial area, that is to say some 26,880 square kilometers, is suited to forests. More than that—52 percent, or 24,960 square kilometers—is suited to forest cover exclusively." [passage omitted]

## EL SALVADOR

### Government Issues Communique Condemning Land Occupation

PA2802142592 San Salvador LA PRENSA GRAFICA  
in Spanish 27 Feb 92 p 57

[Text] The government of President Alfredo Cristiani has condemned the increase in the number of illegal land occupations in various parts of the country.

A government communique reports that this kind of behavior violates the peace agreements signed on 16 January and adds that such occupations have brought about destruction in government-owned forest areas. In addition, the occupants block access to officials of the Ministry of Agriculture and Livestock [MAG] and Salvadoran Institute of Agrarian Transformation thus decreasing the possibility of reaching a solution.

This attitude affects and worsens social problems because it violates Article 11 on individual rights of El Salvador's political Constitution.

The document states that our country is governed by laws that must be respected to maintain a legal state that will consolidate peace.

It also says the government is obliged to "apply the law to anyone who commits a serious crime, such as encroachment."

The government communique states that the MAG advised the UN Observers for El Salvador about these illegal actions and adds that the inspection of illegally occupied lands will be conducted beginning 2 March to determine their legal status and proceed in accordance with the law."

It reminds Salvadorans that "only by respecting the law will we be able to consolidate peace."

Regarding the illegal occupation of land that has taken place in the country, the paragraph referring to the constitutional mandate textually states: As a constitutional mandate, the Government of El Salvador is obliged to apply the law to anyone who commits a crime as grave as encroachment."

## NICARAGUA

### Development of Bosawas Natural Reserve Viewed

92WN0309B Managua BARRICADA in Spanish  
27 Jan 92 p 5

[Article by Carlos Garcia Castillo]

[Excerpts] Miskito and Sumu leaders yesterday demanded respect for their traditions and forms of property ownership, upon joining the commission that will formulate policies "for the management and protection" of the largest natural resources reserve in Central



The green area on the map shows the 8,000 square kilometers of forest reserve in Bosawas. Toward the east, in Puerto Cabezas, a modern airport will soon begin operating, opening up direct air routes to Managua and Miami from the Atlantic. [Source: Managua LA PRENSA in Spanish 26 Jan 92 p 1.]

America. The reserve is located between Jinotega and the North Atlantic region, and is known by the name of Bosawas.

The Miskitos and Sumus participated in the drafting of the decree creating the Bosawas Reserve. "Great hopes are riding on the development of the reserve, and particularly on the protection" of humans and nature, stated Timoteo Patron, leader of the community of Sukawala.

"Our ancestors have always lived in that region; no one can say that the Miskitos and Sumus came from Europe. Some say that we are of Chibcha origin, but that question is obscured by the sands of time," said Miskito Indian

Murphy Almendariz, referring to the project with a mixture of uncertainty and pride.

The reserve, which covers 8,000 square kilometers, is the most ambitious project of the current government with regard to the preservation of the tropical forest. It covers 95 percent of the Miskito and Sumu communities, in which some 30,000 people live. [passage omitted]

#### Wet Tropical and Rain Forests

Institute of Natural Resources Director Incer told BAR-RICADA that the Bosawas project is designed to promote the integral development of a broad swath of

national territory by means of the "rational management" of its natural and aquatic resources, navigation, hydroelectricity, the use of its flora and fauna, and the protection of the indigenous communities.

Incer indicated that the German Government has offered, "to start with," about \$2 million to launch the project, and that the Agency for International Development (AID) will also support the Bosawas project.

This tremendous reserve, for which initial studies date back to the early 1970s, contains a great diversity of ecosystems, including ecotypes representative of the lowland rain forest [bosque humedo tropical] and the montane rain forest [bosque de neblisela], with a very heterogeneous botanical composition of species that have already disappeared or are scarce in the rest of the national territory, according to research by the Institute of Natural Resources (Irena).

The reserve was created by Decree No. 44-91, issued in October of last year. It contains the sources of major rivers such as the Prinzapolka, the Iyas, and the Waspuk, which drain primarily into the Caribbean basin, and to a lesser extent into the Lagos basin. Other rivers, such as the Bocay and the Coco, receive much of their water flow from the tributaries that originate inside the reserve.

According to the Irena experts, the Bosawas project is regarded as a valuable contribution to the national and international scientific community, and particularly to the local populations.

The name Bosawas is a toponymic combination derived from the Bocay River, Saslaya Hill, and the Waspuk River, said Dr. Incer during the installation of the commission that will regulate the project.

The Irena director emphasized the urgent need to draft policies to prevent the destruction of this region's resources, because the present expansion of agricultural areas, disorganized settlements, indiscriminate cutting of forests, and particularly the growth in the population since the demobilization of the Nicaraguan Resistance and the Sandinist Army, are factors that are contributing to the destruction of the reserve's ecosystem, which must be stopped immediately.

## PERU

### National Commission Prepares for UNCED Negotiations

#### Ambassador Urrutia Views Progress

92W/N03644 Lima QUEHACER in Spanish Jan-Feb 92  
pp 18-20

[Interview with Ambassador Jose Urrutia, head of the National Preparatory Commission to the UN Conference on Environment and Development (UNCED), by Correspondent Raul Guerrero; place and date not given]

[Text] Ambassador Jose Urrutia heads the National Preparatory Commission to the UN Conference on Environment and Development (UNCED)-92. The following interview sets forth his opinions about the progress of the work and the difficulties encountered in dealing with certain issues of particular importance to the developing countries, such as financial resources, international trade, the foreign debt, and the ecological debt.

[Correspondent] Mr. Ambassador, the United Nations Conference on Environment and Development is just a few months away. What is your assessment of the work done by the National Commission entrusted with the preparations for Peru's official participation in the conference?

[Urrutia] We have completed the final version of the national report requested by the secretary-general of the UNCED. It describes the development of environmental problems and the progress made in the country in the past 20 years. I would like to emphasize that in the drafting of the national report, rather exhaustive work was done, and I would like to stress the fact that there was dialogue and very open cooperation with the nongovernmental organizations and other government sectors.

The other mandate given the Commission calls for the drafting of the Peruvian position concerning the agenda for the meeting in Rio. In the next few days, the National Commission will be convoked to work on these issues.

[Correspondent] The foreign debt, international trade, and the financial flow are noted in the national report as obstacles to the continuing development of our countries. What suggestions will Peru take to the Conference on these issues?

[Urrutia] Well, we have not yet completed the work on these issues, which are among the most difficult and complex, particularly where the foreign debt and the debt exchange in kind are concerned. This is a subject which is being studied by some technicians, but we have not yet established a clearly defined position. This will emerge in the course of the work of the National Commission in the coming weeks. Before the final meeting of the Preparatory Commission, which will be held in New York in the month of March, we will have a more clearly defined position.

[Correspondent] The national report notes that additional financial resources and net transfers of technology on a concession basis are key subjects in the new dialogue with the industrialized North. Do you believe that there is political willingness in the developed countries to reach concrete agreements of a binding nature on these matters?

[Urrutia] I have just received a report from Mr. Strong, the secretary-general of the UNCED, in which he expresses his concern about the results which may be produced by the Fourth Preparatory Meeting in New

York. Specifically, he thinks that where the financial resources and the transfer of technologies are concerned, an additional meeting, which was not previously planned, possibly in Japan, will be needed. Without a doubt, this is an indication that the developed countries will be adopting increasingly resistant positions in this connection.

The last preparatory meeting will be a very hard and difficult one. At this meeting, there will be further clarification and definition of these quite opposed positions held by the countries in the North and the South, or in the developed and the developing countries, if you will. Serious differences began to emerge on these points at the first preparatory meeting, and they have become greater as the conference itself draws nearer. I imagine that there will be points on which it will be rather difficult to achieve a compromise.

[Correspondent] Some analysts see an inconsistency in the position of the Peruvian Government in the realm of the environment and development. Outwardly, the priority given this issue in the government policy is acknowledged, but internally, environmental management of the process of development is virtually nonexistent. What is your opinion on this matter?

[Urrutia] Without a doubt, there have been many criticisms of the course pursued in Peru following the promulgation of the environmental legislation. This is reflected in the various positions which exist on the matter. But my work is basically focused on the complex of environmental problems in the international realm, and on the position of Peru at the Rio de Janeiro conference, specifically. And in this connection, I believe that there is indeed a consensus, a position shared by the various sectors. On the other matter, having to do with the domestic legislation or the domestic position—that is not included in the work I am doing.

[Correspondent] Ambassador, there are various negotiations on certain agreements, such as that pertaining to biodiversity, for example, which are being pursued parallel to the Conference preparation process. These agreements will be signed in Rio. Have substantive advances been made in these negotiation processes, and will they be completed in time?

[Urrutia] Yes. These agreements, one on climatic changes and another on biodiversity, are being negotiated on a parallel basis. A number of meetings have been held, although I do not recall just how many at this time. Where the problem of climatic changes is concerned, a number of advances have been made. I think that although some difficulties exist, this agreement may be ready for signing during the Rio Conference.

On the other issue, on the other hand, practically all of the points require negotiation. These are very difficult negotiations. There are divergent positions in the North and the South with regard to the handling of biological

diversity, but we hope that between now and June when the Conference is held, a text which the presidents can sign will have been drafted.

[Correspondent] The international public is increasingly skeptical about the likelihood that the Conference will move beyond the level of rhetoric into the realm of joint action by the international community. Do you see valid reasons for this skepticism?

[Urrutia] I believe that where any initiative is concerned, there are some optimists and some pessimists. But what I think is that it is necessary to be realistic, and not to expect miracles of a conference of this sort. The complex of environmental problems is so involved that drastic changes which could transform us into a paradise cannot be expected overnight. But I think that the very fact that this conference is being held is a very positive thing. It provides a framework for dialogue, for the delineation of joint positions. And everything dialogue entails, everything which makes it possible to meet around a table, whatever the issue, is positive. Thus to lament the fact that nothing will happen, that this process will only result in a statement of a lyrical or rhetorical nature, seems to me to be a very negative attitude.

#### Delegation's Official Position Summarized

92WN0364B Lima QUEHACER in Spanish Jan-Feb 92  
p 20

[Text] We will summarize here the positions which the Peruvian delegation has maintained at the three meetings of the Preparatory Commission to the UNCED [UN Conference on Environment and Development].

#### The Earth Charter

This is a declarative document which will govern the conduct of the peoples of the earth where nature is concerned. In the view of Peru, the Earth Charter should be a document in the same category as the Human Rights Declaration. This means it would have to be approved first by the Rio Conference, and then by the United Nations General Assembly.

#### Agenda 21

This is a document which includes more than 150 plans for action, on which previous United Nations conferences were held. They have differed in approach, given the complexity and seriousness of the current environmental problems. Peru has made significant contributions to Agenda 21 on the subjects which concern it. They include, for example:

- The introduction of the high-mountain category among the fragile ecosystems.
- Demonstration of the links between the subject of biological diversity and biotechnology.

### Agreement on Biological Diversity

This is an instrument on which negotiations are proceeding parallel to the preparations for the UNCED. It is hoped that it will be ready for signing at the Rio Conference. This agreement is designed to protect all species of life, whether known or unknown to man. In this connection, Peru supports the sovereign right of countries to make use of their own resources without interference of any kind. Within this context of respect for national sovereignty, Peru is prepared to share its genetic heritage with the developed countries, provided always that it has access to biotechnology and to the equitable use thereof.

### Agreement on Climatic Changes.

This agreement seeks to regulate (halt) the emission of the gases which produce the greenhouse effect. The principal gas concerned is carbon dioxide (CO<sub>2</sub>). The Peruvian position, like those of the rest of the developing countries, is that the emission of the gases which produce the greenhouse effect should be halted, but on a differentiated basis, consistent with the current and historic responsibility of each country for climatic changes. In this connection, since Peru has made a minimal contribution to the accentuation of the greenhouse effect, it would have a ceiling established for several years, during which it could continue using fossil fuels while our production system is being adapted to the new environmental needs.

However, the plans for action contained in this agenda and in other decisions adopted at the Brazil Conference will remain a dead letter unless they are accompanied by a net transfer of financial resources and technologies by the countries responsible for the deterioration of our planet. This is one of the basic issues which will be dealt with during the fourth and last session to be held by the Preparatory Commission to the UNCED in New York during the month of April 1992.

It is equally necessary that all of the United Nations organizations include the environmental theme within their spheres of competence, and also that the United Nations Program for the Environment be especially strengthened.

## VENEZUELA

### Bioma Report Cites Worsening of Environmental Conditions

92WN0307A Caracas EL UNIVERSAL in Spanish  
9 Feb 92 Section 2 p 36

[Report on interview with Aldemaro Romero, president of Bioma [Venezuelan Foundation for the Conservation of Biological Diversity], and Victor Garrido by Pilar Pascual at EL UNIVERSAL editorial offices; date not given]

[Text] Five species of plants unique in the world have become extinct.

Half of our beaches are unfit for bathers.

Diseases caused by environmental deterioration have increased.

A total of 101 animal and 185 plant species are in danger of extinction.

The deforestation rate in our Amazon region is greater than in Brazil.

The 200,000 tons of toxic and radioactive waste that we generate are not receiving proper treatment. Only 30 percent of the garbage is suitably deposited in sanitary landfills. Nine out of 10 watersheds are highly polluted; 50 percent of the beaches are unfit for bathers; and 101 animal and 185 plant species are threatened with extinction.

These alarming statistics constitute only a portion of the environmental diagnosis made by Bioma [Venezuelan Foundation for the Conservation of Biological Diversity] in its 1991 Environmental Audit of Venezuela.

There is even more: Five plant species unique in the world have become extinct; and 32 percent of the country's natural areas have disappeared. The permissible levels of various pollutants are being exceeded in half a dozen of the nation's cities and nine areas of Caracas. Acid rain is generating precipitation capable of killing fresh water fish.

The Plexus report for 1990 reveals that 64 percent of miners have mercury levels in their urine exceeding the permissible amounts. The same thing holds true of the lungs among 81 percent of miners.

After hearing these figures it seems impossible that only 7 percent of Venezuelans should consider environmental protection a national priority. And it is revealing that only 14 percent know that the Ministry of Environment exists.

On Friday Bioma submitted the results of its investigations to the environment minister, Enrique Colmenares Finol, informing him that, "Many of the problems that we cited last year regarding the country's ecological situation not only have failed to be solved but, what is even more serious, have become worse."

Aldemaro Romero, president of Bioma, and Victor Garrido visited our editorial office.

[Question] Our Amazon jungle is deteriorating faster than that of Brazil.

[Answer] The proportion of deforestation is greater than that in Brazil, which has caused a scandal worldwide. The Brazilian Government mentions 5 or 6 percent, and the environmentalists, 11 percent. In our country, according to this audit, we have reached the point where 32 percent of the natural areas have disappeared,

without any national or international reaction occurring. The consequences of that are reflected in those long lists of both animal and plant species in danger of extinction, as Aldemaro Romero indicated.

The most serious aspect is that five plant species have been found to be extinct, and they were indigenous to the country.

[Question] In other words, mankind has lost them forever.

[Answer] Exactly; without having learned their potential for pharmaceutical development, or their use in the chemical industry. We must remember that 50 percent of the medicines sold in pharmacies are based on compounds extracted from plants, although only less than 1 percent of the world's plant species has been studied for pharmacological purposes. The 132 fundamental active principles in medicines originate in about 100 plants.

Our concern is not only the conservationist one, which is valid *per se*, but it is also over the fact that, the more destruction of nature that occurs, the fewer the possibilities of development.

[Question] Which companies generate the 200,000 tons of toxic waste?

[Answer] The chemical industry is quite developed in Venezuela, because it is an oil-producing country. The problem is that there are no waste treatment systems in Venezuela.

[Question] Are the state's own companies involved?

[Answer] There are many companies, but what is tragic is that they store hundreds of drums and have no means of treating them; and they can't export them because international laws prohibit it. It isn't that these people lack an environmental awareness, but rather that an industry for treating toxic waste is needed.

[Question] Wouldn't it be up to each company to implement this?

[Answer] These are very expensive systems. In other countries, several business owners have joined together to create a company dedicated to waste treatment, which also provides the service to other firms paying for it.

[Question] What are the most dramatic findings of the 1991 report?

[Answer] What disturbs us is the disproportionate increase in diseases originating in environmental deterioration: diarrhea in children under age four, asthma, malaria, and cholera. Less than half of Venezuelans have access to drinking water in good condition. This should prompt us to reflect, because it's not a matter of conserving birds, but rather our own health. Half of the beaches are polluted with fecal matter, and are still being used. In Zulia, none of the 123 beaches are fit for bathers. It is there, precisely, that the problem of cholera has been most exacerbated.

### The Congress

On Monday, the Fourth World Congress on Protected Areas opens. Bioma will submit several reports. They will deal with the necessity for convincing the state and the indigenous populations of the importance of these areas, "which should be generating economic resources, primarily for the inhabitants of those zones: the Indians and campesinos."

[Question] Will the problem of the "garimpeiros" [clandestine prospectors] be discussed?

[Answer] The issue will come up on many occasions, because mining and the environment will be debated extensively. We think that only through the development of a controlled mining industry, that is, one run by companies capable of investing in nonpolluting systems (such as centrifuges that separate gold without using mercury), and forced to safeguard their workers' health, will it be possible to establish a suitable system. Through it, the ecological impact of that activity would be minimized and, simultaneously, economic resources would be generated for the country, as well as decent working conditions for the workers.

## REGIONAL AFFAIRS

### Japanese Mission Surveys Environmental Problems in Middle East

OW0203010992 Tokyo KYODO in English 0046 GMT  
2 Mar 92

[Text] Amman, March 1 (KYODO)—A Japanese Government mission arrived Sunday night to survey environmental problems in the Middle East region.

The seven-member survey team will also visit Israel, and the Israeli-occupied West Bank and Gaza Strip during its two-week visit, Japanese officials said.

Pollution in the Gulf of Aqaba, an arm of the Red Sea shared by Jordan, Israel, and Egypt, will be one of the focal points of the survey.

Another focus will be water pollution and other environmental problems in the occupied territories as they affect the lives of Palestinians residing there.

Pollution problems in the Jordan Valley, as well as pesticide pollution in the River Jordan, which flows through Israel and empties into the Dead Sea, will also be examined.

Japanese Foreign Minister Michio Watanabe pledged to send the mission to the region when he attended an international conference in January in Moscow on peace in the Middle East.

The results of the mission's survey will be taken up by a working group on the environment that was formed under the auspices of the peace conference. Japan chairs the working group.

## ISRAEL

### Japanese Experts Urge Unilateral Action on Elat-Aqaba Gulf Pollution

TA1303110092 Tel Aviv DAVAR in Hebrew 13 Mar 92  
p 4

[Report by Hemi Shalev]

[Text] The head of the Japanese survey team on environmental issues yesterday briefed Foreign Ministry senior officials about the serious water pollution in the Gulf of Elat-Aqaba area and said swift action must be taken before irreversible damage is caused.

Ambassador Yoshiji Nojama, deputy director of the Middle Eastern Bureau at the Japanese Ministry of Foreign Affairs, said that the situation is critical because the water is polluted with sewage. Due to the urgency of the situation, he said national plans should be enforced rather than wait for regional cooperation in the area.

Nojama also reported ecological and pollution problems in the territories and noted that these would be better

dealt within the context of a regional program. He recommended that the issue be discussed in the multilateral rather than the bilateral forum.

Foreign Ministry Director General Yosef Hadas said Foreign Minister David Levi would discuss environmental problems with his Japanese hosts when he visits Tokyo in mid-April.

The Japanese survey team, which has also visited Jordan, is preparing the agenda for the seminar on environmental problems that is scheduled to be held in Japan at the beginning of May within the framework of the multilateral peace process. Japan is the "mentor" of the working team on environmental issues.

## JORDAN

### Japanese Delegation Studies Jordan Environment

JN0703103192 Amman JORDAN TIMES in English  
7 Mar 92 p 3

[By Nur Sati, special to the JORDAN TIMES]

[Text] Amman—The seven member Japanese fact-finding mission on Middle East environment left Jordan Friday for visits to the West Bank and Gaza Strip.

The fact-finding mission comes after officials at the Moscow multilateral conference on Middle East peace announced that Japan would play a major role, particularly in the environmental protection, and suggested the dispatch of a preliminary mission.

The mission is part of a group of five different working groups that was established at the January multilateral conference. The working groups include regional economic development, refugees, security and arms control as well as water.

"Our purpose is to come up with the basic working documents for a meeting on environment in Tokyo in the first week of May," said Yoshiji Nogami, deputy director-general of the Middle Eastern and African Affairs Bureau at the Japanese Ministry of Foreign Affairs.

Mr. Nogami sees Japan's role at this juncture as a secretariat. "We are going to provide the venue for discussion among countries of the region and outside," he said. "Maybe, further down the road, when discussions progress, we will be able to fill in concrete ideas or some suggestions for international cooperation."

The fact-finding group, which spent six days here, is currently writing a background paper which will be submitted to the meeting in Tokyo. The paper will cover all environmental issues in the region to provide a scope for regional cooperation in a wider sense. Mr. Nogami said.

Mr. Nogami declined to elaborate on the working paper, saying that the fact-finding mission has only completed the first leg of its tour and "what we have found out is only part of the report."

The delegation, which visited the Gulf of Aqaba and the Jordan Valley, looked into the system and policy of environmental protection in the Kingdom. "It is not possible for us to evaluate what we have seen," Mr. Nogami told the Jordan Times. "But the issue of Aqaba includes prevention of potential hazards and protection of natural habitat."

Mr. Nogami, who had extensive discussions with governmental and non-governmental authorities, said his talks were not limited to the environment alone.

"When one talks about the environment, we take elements like economic development or the relationship between preservation of natural habitat and promotion of tourism or industrial development."

In the Gulf of Aqaba, these issues co-exist, Mr. Nogami said. "We have to maintain the current environment of Aqaba, not only from the point of view of natural habitat and water, but there are other requirements."

Mr. Nogami, who also held talks with Foreign Minister Kamil Abu-Jabir, exchanged opinions and propositions on environmental issues, problems facing the whole region and ways to solve them.

The meeting was an introductory session to the environmental meeting to be held in Tokyo.

In a statement to reporters shortly after the meeting Thursday evening, Mr. Nogami said that his country would continue negotiations and contacts with all other concerned countries and expressed hope that these countries would be able to put together an agenda during the coming few weeks for the Tokyo conference.

The Japanese delegation said they valued the Jordanian government's concern over environmental issues and all the research that has been conducted in this field. Mr. Nogami also expressed Japan's willingness to continue cooperation with Jordan in environmental fields through all possible means, especially through the working groups which are preparing for the Tokyo conference.

## UNITED ARAB EMIRATES

### French Company To Set Up Desalination Plant

92WN0281A *Dubayy AL-BAYAN in Arabic* 11 Jan 92 p 7

[Article: "New Power, Water Projects in Abu Dhabi"]

[Excerpts] In accordance with the directives of the chief of state, His Royal Highness Shaykh Zayid Bin-Sultan Al Nuhayyan, and by order of Crown Prince and Commander-in-Chief of the Armed Forces His Royal Highness Shaykh Khalifah Bin-Zayid Al Nuhayyan, the

Water and Electricity Administration is doubling its efforts to implement several ambitious fresh-water projects [passage omitted] for the benefit and well-being of the country and its citizens.

Jaw'an Mubarak Bin-Fadil al-Mazru'i, a representative of the Water and Electricity Administration, explained in an exclusive interview with the United Arab Emirates News Agency that, as part of these efforts, a contract has been signed with the international French CEDEM Company for a major 500-million-Emirian dirham desalination project in the al-Tawilah area to be completed within 28 months.

This project includes establishing annexes with one boiler operating around the clock. The project will be set up by the French company under the direct supervision of an al-Tawilah project consultant from the administration who will monitor the implementation of the various stages in accordance with agreed specifications conforming to those followed in advanced countries. This is to ensure a high and systematic efficiency of the project's output of more than 7 million gallons of fresh water per day, as well as continued superior performance.

Al-Mazru'i went on to say that the department had selected for this project the best bid submitted in terms of efficiency and duration. The project includes establishing a fourth desalination unit to complete the first stage of the huge al-Tawilah Industrial Complex projects, which were put into operation about two years ago on the basis that the new desalination plant would be put into actual service in early 1994 to meet the projected fresh water needs following the desalination of our sea water. This is in light of the international tendency toward desalinating sea water as a continual source of water for drinking and farming, in particular.

Jaw'an al-Mazru'i stated that the Water and Electricity Administration is in the process of completing several other projects in the al-Gharbiyah [western] area, particularly the main plant, which His Royal Highness Shaykh Zayid Bin-Sultan Al Nuhayyan ordered built in Madinat al-Marfa' [al-Marfa City]. He also indicated that the architectural design stage of this project had been completed, and a two-part bid will be announced shortly, one for electric-power generation and one for water desalination.

Projections indicate that fresh-water output will range between 16 million and 20 million gallons per day, and power output will be between 140 and 160 megawatts a day. This will cover the projected future fresh-water and electricity needs of Madinat al-Marfa' and other regions, including Mad'nat Zayid and Muhadir Liwa in the first stage; and the regions of Ghayyathi, Jabal al-Zannah, and Bid' al-Mutawa'ah in the second stage.

The representative said that he expected this huge project to be completed in 1995, thus addressing all complaints about fresh-water shortages. [passage omitted]

**Dubayy Slated To Host First Gulf Water Conference**

92WN0281B Dubayy AL-BAYAN in Arabic 12 Jan 92  
p 6

[Article: "Dubayy Hosting First Gulf Water Conference Next October"]

[Text] The first Gulf water conference will be held under the auspices of His Royal Highness Shaykh Maktum Bin-Rashid Al Maktum, Dubayy's vice-president, prime minister, and governor. The conference is being organized by the Water Sciences and Technology Association in cooperation with the General Secretariat of the GCC [Gulf Cooperation Council], the Ministry of Water and Electricity, and other government agencies, and will be held in Dubayy 10 to 14 October 1992.

His Excellency Hamid Bin-Nasir al-'Uways, minister of water and electricity, stated that the conference will be held under the slogan "Water and Development in the Gulf and Future Challenges."

He added that the conference aims to exchange and disseminate information and expertise among officials and other individuals concerned with water affairs, and to debate the challenges facing the Gulf countries in their efforts to secure and augment the water sources necessary for the security and welfare of the region.

The conference also aims at assessing natural and industrial water sources and available economic and technological alternatives to manage and develop these sources, as well as to present and analyze the elements needed to build the necessary industrial base in order to provide the relevant technology, equipment, spare parts, and engineering services in light of existing experiments and future needs and aspirations.

His excellency, the minister of water and electric power, pointed out that the conference aims to review the region's expertise in managing water and sewage systems and ways to upgrade productive efficiency in the operation and maintenance of technological and water desalination plants, as well as used-water treatment plants. The conference will also present and assess research, educational, and training programs pertaining to water in the Gulf countries, and will set modification and development priorities. It will also review the region's experiments to curb the rising groundwater level in urban areas and other public health and environmental protection programs. It is noteworthy that the organizing committee plans to invite water experts and advocates to present relevant research papers and studies to be introduced and debated during the conference's scientific program.

**Decree Establishes Water, Electricity Authority**

92WN0281C Dubayy AL-BAYAN in Arabic 12 Jan 92  
p 6

[Article by Walid al-'Aridah: "Maktum Issues Decree To Set Up Dubayy Water and Electricity Authority"]

[Text] Vice-president and prime minister His Royal Highness Shaykh Maktum Bin-Rashid Al Maktum, in his capacity as governor of the Dubayy Emirate, issued Decree No. 1 of 1992 concerning the establishment of a water and electricity authority in Dubayy. The following is the text of the decree:

**We, Maktum bin-Rashid Al Maktum, the governor of Dubai, having examined Decree No. 6 of 1990 concerning the creation of a board of directors to run the Dubayy Electricity and Water Authority, decree the following:**

**Article 1:** The following words shall carry the meanings shown next to them, unless otherwise indicated in the text:

- Governor: His Royal Highness the Governor of Dubayy Emirate;
- Government: The government of the Dubayy Emirate;
- Company: The Dubayy Electricity Company;
- Authority: The Dubayy Electricity and Water Authority;
- Board: The board of directors of the Water and Electricity Authority.

**Article 2-1:** In accordance with this decree, a general independent authority shall be established under the name the Dubayy Water and Electricity Authority and shall be owned by the government.

**Article 2-2:** The authority shall enjoy a corporate body status with financial and administrative independence, and shall have the right to institute or be subject to legal action and to delegate any person it chooses to act on its behalf in legal proceedings.

**Article 3:** The authority's objectives shall be as follows:

- First: Ownership, management, operation, and maintenance of electricity generation and water desalination plants, water fields, power lines, water distribution systems, and other company and authority properties and assets;
- Second: Development of water sources, including the production and treatment of potable water, and compliance with the necessary storage, transportation, and distribution procedures in effect in the Emirate;
- Third: Carrying out power generation and water supply projects to meet public needs and economic development requirements;
- Fourth: Acquisition, leasing, and management of buildings in fulfillment of the authority's objectives;
- Fifth: Investment of authority funds in any way it deems fit, and taking out guaranteed or unguaranteed loans;

- Sixth: By and large, the authority shall pursue and implement all business directly or indirectly related to the fulfillment of said objectives.

**Article 4:** As of the date of the promulgation of this decree, all company and authority rights, properties, and assets belonging to the government shall be turned over to the authority, which shall be responsible for company and authority obligations and loans, regardless of their nature.

**Article 5:** The authority shall be run by a board to be called the "Board of Directors of the Dubayy Electricity and Water Authority," and to be appointed by a decree issued by the governor. The company and authority board of directors, formed in accordance with Decree No. 6 of 1991, dated 5 December 1990, and with the order issued 2 March 1990, shall be considered the board appointed to manage the authority, as of the date of the promulgation of this decree.

**Article 6:** The board shall manage the authority's affairs and shall be vested with the following powers and jurisdictions:

- A. Ratification of annual draft budgets;
- B. Ratification of electricity and water services plans and programs, and approval and supervision of contracts and agreements concluded for this purpose;
- C. Setting electricity and water rates and terms for delivery to the public, with the governor's approval;
- D. Issuance of bylaws related to the organization of administrative, financial, and technical activities and to the supervision of their implementation;
- E. Ratification of the authority's organizational structures;
- F. Issuance of regulations governing employment of authority personnel and definition of their employment terms, rights, and duties;
- G. Borrowing funds, from any source, and offering various guarantees for this purpose, on condition that the governor's approval is obtained in advance.
- H. Appointment of auditors and setting of their fees;
- I. Ratification of final accounts within no more than four months from the end of the fiscal year.

**Article 7:** The board shall convene at least once every three months, and the board shall be called to session by the board chairman or, in his absence, by his deputy. A quorum shall be attained with the attendance of the absolute majority of the members.

**Article 8:** Board decisions shall be issued by the absolute majority of attendees. In case of a tie, the chairman, or in his absence, his deputy, shall have the deciding vote.

**Article 9:** The board may form permanent or interim sub-committees to assist it in the performance of its duties. The board shall determine the committees' powers and jurisdictions, and shall have the right to delegate some of its powers to them.

**Article 10:** The board, the chairman of the board, or any member of the board, in the conduct of the board's duties, shall not be responsible to others for any action or omission committed in this regard. The authority alone shall be responsible to others for such action or omission.

**Article 11:**

- A: Taking the provision of Paragraph B of this article into account, bylaws and regulations issued by the board shall be binding upon all.
- B: The governor shall have the right to amend the bylaws and regulations issued by the board and to replace them in any way he sees fit. He shall also have the right to exempt anyone from abiding by them or by any provisions thereof.
- C: Such bylaws, and regulations and amendments thereof, whether issued by the board or the government, shall go into effect as of the date of their promulgation.

**Article 12:** The authority shall be exempt from customs fees on all the imports it needs for the conduct of its business and the fulfillment of its objectives.

**Article 13:** This decree shall take effect as of the date of its promulgation and shall be published in the Official Gazette. [signed] Maktum bin-Rashid Al Maktum, Governor of Dubayy Issued in Dubayy, 1 January 1991/26 Jamadi al-Thani 1412 Hijra

### **Recent Drop in Groundwater Levels in Northern Emirates Noted**

92WN0298A *Al-Shariqah AL-KHALIJ in Arabic*  
18 Jan 92 p 3

[Article by Muhsin al-[Bush]]

[Text] Ra's al-Khaymah—Sources in several well-digging companies in the state estimate that the groundwater level in the northern emirates has dropped by 10 to 15 percent in recent years. They stated that the lowest drop in the groundwater level occurred in the al-Dhayd area, where the water level dropped to between 1,500 and 2,000 feet.

The sources indicated that the water level differs significantly from one area to another, and that there is also an appreciable difference in the degree of salinity, which might differ between two areas that are almost adjacent to each other. They also noted that the degree of water salinity increases as a function of well depth and proximity to the sea.

The sources relate that the only answer to the shortage of wells is to move toward seawater desalinization plants, which are the best and surest means of providing drinking water, in addition to water consumption control efforts. The sources recommend expanding modern irrigation networks to reduce overuse, growing crops that do not require large quantities of water, and controlling and monitoring national farms to prevent excessive

consumption (farms frequently have four to seven wells producing 2,000 to 8,000 gallons per hour to irrigate trees and plants lacking economic value).

The sources stated that a good groundwater level continues to exist in the areas of: al-[Filah] and Sayh al-'Aqarib in al-Shariqah; al-Khawaniq, al-'Awir, and Hatta in Dubayy; al-Manamah in 'Ajman; and Sha'm, Ghalilah, and al-al-Hamraniyah in Ra's al-Khaymah.

The best groundwater level in the northern emirates, which is currently at a depth of almost 70 feet, is in the area of al-Filah in al-Shariqah, although the water there is relatively saline. The water in the area of Sayh al-'Aqarib is fresh, potable and found at a depth of 120 to 150 feet. The electricity and water department in al-Shariqah dug a number of wells there in 1989 to feed the water system in the area.

In the two areas of al-Khawaniq and al-'Awir in Dubayy, the average water level totals 150 feet and the water is characterized by a degree of salinity. In the Hatta area, there is water beginning at a depth of 300 feet. According to the sources, the percentage of salinity in Hatta varies within the area itself. In the neighboring area of al-Muzayri', which lies in the emirate of 'Ajman, the groundwater level is thousands of feet lower than that it is in the Hatta area.

Salim Muhammad Salim, the manager of a well-digging company in al-Dhayd, said that the water in the al-Manamah area (also in 'Ajman) lies at a depth of 500 to 600 feet and contains calcium sediments. This adversely affects the operation of water pumps, which malfunction constantly.

The water level and percentage of water salinity in the emirate of Ra's al-Khaymah differ considerably from

one area to another within the emirate, given its expansiveness. In general, the area of Sha'm and Ghalilah have a relatively higher groundwater level. Relatively fresh water can be found there at a depth of 180 feet, although seawater is encountered beyond that depth.

Water is abundant in the mountainous area of al-Burayrat, but it is located at a depth of 500 to 600 feet. In Wadi Qur, there is relatively little water. In al-Huwaylat and al-Munay'i, water is abundantly available at depths of 300 to 500 feet.

Sources in well-digging companies emphasize that areas that have seen a drop in the water level still have a generally reasonable groundwater reserve. The al-Hamraniyah area in Ra's al-Khaymah contains a substantial water reserve, as does the al-Diqdaqah area, although it is generally smaller. The water level in these two areas fluctuates between 400 and 600 feet. In the neighboring Khatt area, the groundwater reserve has been greatly affected in recent years.

The sources attribute the United Arab Emirates's drop in the groundwater level in recent years to the shortage of rain. There has been rainfall, but it has not replenished the groundwater reserve, on the average. The sources indicated that the UAE has not seen abundant rains that would have an effect on the groundwater reserve in the past decade, except in the winter of 1987-1988, when enough rain fell to replenish the groundwater reserve. The high groundwater consumption rate in recent years has also lowered the groundwater level considerably.

The sources warned against continued drawing from the groundwater reserve at the current high rates, stressing that doing so would result in a very serious water shortage in the next few years against the backdrop of sparse or low rainfall.

**Russian Delegation Head Comments on Preparations for UNCED***LD0404181192 Moscow ITAR-TASS in English  
1329 GMT 4 Apr 92*

[By ITAR-TASS correspondent Yevgeniy Meneks]

[Text] United Nations, April 4 (TASS)—The fourth and the last session of the preparation committee of the forthcoming United Nations Conference on Environment and Development (UNCED), scheduled to be held in June in Rio de Janeiro, is coming to an end. Participants of the committee mainly approved concluding documents, among which "The XXI Century Agenda," the all-embracing program of action to ensure development that is well-grounded in ecological respect, stood out. At the same time, certain questions, especially those concerning financing of its future programs, could not be solved. Now they will be put up for discussion directly in the forthcoming Rio session.

"As a matter of fact, it concerns the integration of the ecological factor in the economic sphere as a whole," head of the Russian delegation, Mikhail Kokeyev told ITAR-TASS. The proposed program is of quite a vast nature and is planned for many years ahead, he said concluding the session. "The XXI Century Agenda" is a unique document which reflects the conception of the global equality of partnership. As a whole, the process of preparation for the conference demonstrated readiness of almost all countries of the world to understand cardinal changes taking place in the world and to jointly find solutions to the most complicated problems, he said.

The Russian diplomat admitted the presence of considerable difference of opinion between certain groups of nations on a number of problems discussed. It was, in particular, reflected by the fact that in the draft documents a number of statutes were put in brackets, which meant that they were not agreed to. However, according to him, no one is inclined to dramatize the situation, considering that almost all points may be agreed to.

According to the estimate of experts from the UN Secretariat, a sum of 135 billion dollars will be needed to realize this strategy, Kokeyev pointed out. Out of this 50 billion dollars will have to be contributed by the countries of central and Eastern Europe, which include Russia and other countries of the former Soviet Union. Of course, they do not have such resources and hardly anyone of them will be in a position to allocate them. It's a very rough estimate, which gives a good idea of the dimensions of the tasks that lie ahead in this sphere.

Preparations for the conference, by sheer chance, coincided with the period of critically important events in Russia, the head of the Russian delegation said. We started deep economic reforms, maybe the deepest in our history. If, from the very beginning, we set the ecological factor into our reform program, it will really become a reform program of stable development. Obviously, for

this we will need mobilization of our internal resources and considerable support of the international community as well. According to Kokeyev, the Russian delegation insisted on keeping Russian interests in view in the draft documents. First of all, it concerns questions of financing and transfer of technology, because it directly affects the material basis for realizing the decisions of the future conference, he said.

**Russia, Norway Sign Protocol on Cooperation***LD0803164792 Moscow TASS International Service  
in Russian 1157 GMT 8 Mar 92*

[By ITAR-TASS special correspondents Vitaliy Loskutov and Georgiy Shmelev]

[Text] Oslo, 8 Mar (ITAR-TASS)—A joint protocol on a working program for developing contacts and cooperation between the Russian Federation and Norway was signed at the end of talks between Russian Foreign Minister A. Kozyrev and Norwegian Foreign Minister T. Stoltenberg at the Norwegian Foreign Ministry earlier today.

The document notes that deep changes in Europe have created a favorable basis for good-neighborliness and close interaction between states. The two parties think that intensive, regular political dialogue and contacts are an important precondition for developing and deepening relations. The Norwegian side invited Russian President Boris Yeltsin and Gennadiy Burbulis, state secretary and first deputy chairman of the Russian Government, to pay an official visit to Norway within this framework. The Russian minister invited Norwegian Foreign Minister T. Stoltenberg to visit Russia.

The document stresses that the Russian Federation is a successor state of the Soviet Union and that Russia will fulfill bilateral and multilateral international obligations and agreements concluded by the USSR. The ministers agreed to start preparing immediately a joint statement on the principles for developing relations between the Russian Federation and Norway.

As for the problem of demarcating the continental shelf and economic zones in the Barents Sea, the ministers agreed on the need to expedite talks to solve the issue and on a new round of working consultations at expert level in Moscow in April.

The economic department heads focused on the economic cooperation problem, noting that Russia's wide-scale reforms to create an open market economy create new possibilities for developing trade, economic, and scientific-technical ties and credit-financial cooperation between Russia and Norway. These contacts will continue on the basis of existing agreements and accords. The sides also agreed to conclude an agreement on mutual promotion and protection of investments.

The sides considered concrete projects for developing cooperation. On power engineering, the Norwegian side

invited Russian partners to the first joint forum on power engineering and environment, scheduled to take place in Oslo at a political level some time in 1992. The ministers focused on the forthcoming meeting at a political level between oil-producing and oil-consuming countries in Bergen in July.

On fishing, the sides stressed that they intend to promote further development of fishing cooperation on the basis of mutual commercial and scientific contacts between enterprises, organizations, and firms, including setting up scientific collectives and other cooperation bodies. The Russian side proposed setting up a single, independent, scientific-research center for monitoring and forecasting Barents Sea resources.

On the environment, the ministers agreed to hold a sitting of a mixed commission on cooperation before the end of April. Russian-North European cooperation on modernizing the metallurgical combine "Nechengani-kel," in the Kola Peninsula; on nuclear security, inter alia at the Kola nuclear power station; on storing and eliminating nuclear waste, including waste from nuclear reactors; and on the issue of radioactive waste burials in the Barents Sea will be considered.

The protocol speaks about developing border ties and cooperation in the north. Specifically, the sides agreed to promote contacts between regional authorities in northern Norway and northwestern Russia, to expand ties between indigenous peoples of the North in the two countries, and to facilitate border contacts by introducing a simplified entry and exit procedure.

The ministers agreed on the question of opening Russia's general consulate in Troms and Norway's general consulates in St. Petersburg and Murmansk soon and on considering the issue of founding honorary consulates, namely a Russian honorary consulate in Kirkenes and a Norwegian honorary consulate in Nikel.

#### **RSFSR Law on Environmental Protection**

92W0327A Moscow ROSSIYSKAYA GAZETA  
in Russian 3 Mar 92 pp 3-6

[RSFSR Law No. 2060-1, adopted 19 December 1991:  
"On Protection of the Environment"]

[Text] Nature and its riches are a national treasure of the peoples of Russia and the natural basis for their continuing social and economic development and human prosperity.

The present law in combination with measures of an organizational, legal, economic and educational nature is intended to aid in the formation and strengthening of a system of environmental legislation and to ensure environmental safety within the territory of the Russian Federation and its constituent republics.

### **Section I: General Principles**

#### **Article 1: Purposes of Russian Federation Environmental Protection Legislation**

The purposes of Russian Federation environmental protection legislation are to regulate relations in the area of interaction between society and nature with the objective of preserving natural riches and the natural human environment, preventing environmentally harmful effects from commercial and other activities, restoring and improving the quality of the environment and strengthening law and order for the sake of the present and future generations of human beings.

#### **Article 2: The Russian Federation System of Environmental Protection Legislation**

Environmental protection relations in the Russian Federation are regulated by the present law and legislative acts developed in accordance with it by the Russian Federation and its constituent republics.

#### **Article 3: Basic Principles of Environmental Protection**

When carrying out commercial, administrative and other activities which have a negative effect on the state of the environment soviets of people's deputies, other state organs, enterprises, institutions, organizations, private citizens of the Russian Federation and foreign corporate bodies, foreign citizens and stateless persons have an obligation to be guided by the following basic principles:

- the priority of protecting human life and health and ensuring favorable environmental conditions for the public's life, labor and recreation;
- a scientifically-based combination of society's ecological and economic interests which will provide real guarantees for the rights of human beings to a healthy and livable environment;
- rational use of natural resources, with consideration for the laws of nature, the environment's potential, and the need to renew natural resources and to prevent irreparable consequences for the environment and human health;
- compliance with the requirements of environmental protection legislation, and the inevitability of liability for violation of those requirements;
- openness about this work and close ties to public organizations and the general public in regard to environmental protection tasks;
- international cooperation on environmental protection matters.

**Article 4: The Objects of Environmental Protection**

1. The following are subject to protection from pollution, degradation, damage, depletion and destruction within the territory of the Russian Federation and its constituent republics:

- natural ecological systems and the ozone layer of the atmosphere;
- the land, underground resources, surface water and ground water, the atmosphere, forests and other vegetation, animal life, microorganisms, the genetic pool and natural landscapes.

2. State nature preserves, state reserves, national parks, natural monuments, rare or threatened plants and animals and their habitats are subject to special protection.

**Article 5: Authority of the Russian Federation Supreme Soviet in the Area of Environmental Protection**

The following fall under the exclusive authority of the Russian Federation Supreme Soviet with regard to regulation of environmental protection relations:

- definition of basic orientations for state policy in the area of environmental protection;
- approval of the state environmental program;
- definition of the legal basis for regulation of relations in the area of environmental protection;
- definition of the powers of soviets of people's deputies and procedures for the organization and operations of administrative organs in the area of environmental protection, use of natural resources and maintenance of environmental safety;
- establishment of a legal regime in environmental emergency zones and environmental disaster zones, the legal status of affected citizens, and maintenance of the regime within such zones within the territory of the Russian Federation and its constituent republics.

The Russian Federation Supreme Soviet may also consider other matters in the area of environmental protection, natural resource utilization and maintenance of environmental safety in accordance with the RSFSR Constitution and the present law.

**Article 6: Authority of the Russian Federation Government in the Area of Environmental Protection**

The Government of the Russian Federation may in the area of environmental protection:

- implement state environmental policy;
- draft and implement state environmental programs for the Russian Federation and its constituent republics, as well as interstate and regional environmental programs;

- coordinate the activities of ministries, agencies and other institutions and organizations within the territory of the Russian Federation in the area of environmental protection;

- establish procedures for the creation and use of a non-budgetary federal environmental fund;

- oversee preparation and distribution of an annual state report on the state of the environment;

- establish procedures for the development and approval of environmental standards for emissions and discharges of pollutants into the environment and limits on natural resource utilization and waste storage;

- establish procedures for setting fees and maximum fee amounts for use of natural resources, environmental pollution, waste storage and other types of harmful activity;

- make decisions in regard to the organization of specially protected natural areas and sites and their inclusion in the nature preserve system of the Russian Federation;

- set up a system for universal public continuing environmental training and education;

- make decisions regarding the termination of operations by enterprises, institutions and organizations regardless of their form of ownership or subordination in the event that they violate environmental protection legislation;

- provide the public with essential environmental information;

- conduct the Russian Federation's foreign relations in the area of environmental protection.

The Government of the Russian Federation may also exercise other powers in accordance with the present law.

**Article 7: Authority of Duly Authorized State Organs of the Russian Federation in the Area of Environmental Protection**

The following fall under the authority of duly authorized state organs of the Russian Federation in the area of environmental protection:

- comprehensive management in the area of environmental protection in the Russian Federation, conducting of a unified scientific and technical policy on matters of environmental protection and natural resource utilization, and coordination of activities by ministries, agencies, enterprises, institutions and organizations in that area;

- state monitoring of the use and preservation of land, underground resources, surface water and ground water, the atmosphere, forests and other vegetation,

animal life, natural resources, the continental shelf and the Russian Federation's maritime economic zone, and monitoring of compliance with environmental safety standards;

- organization of environmental monitoring, and creation and maintenance of operations by a state service for environmental oversight;
- approval of standards and regulations, participation in the development of standards regulating natural resource utilization and protection of the environment from pollution and other harmful influences;
- conducting of state environmental assessments;
- receipt of environmental information free of charge from ministries, agencies, enterprises, institutions and organizations;
- provision of environmental information to the public;
- issuing of licenses for the burial (or storage) of industrial, municipal, household and other wastes, emissions and discharges of pollutants into the environment and use of natural resources in accordance with the laws of the Russian Federation;
- restriction or suspension of activities by enterprises and other facilities regardless of their form of ownership or subordination, if those operations are being conducted in violation of environmental protection legislation or licenses for the use of natural resources or in excess of limits on pollutant emissions and discharges;
- lawsuits demanding compensation for damages incurred as a result of violations of environmental protection legislation;
- development of state, interstate and regional environmental programs;
- preparation of reports and consideration of cases involving administrative legal violations in the area of environmental protection and natural resource utilization;
- recording and assessment of natural resources and maintenance of federal cadastral maps of natural resources;
- management of the Russian Federation's nature preserves, keeping of entries in the Russian Federation Red Book and sponsorship of efforts to establish nature preserves;
- participation in the organization of a system of universal continuing environmental training and education;
- coordination of efforts by other duly authorized state administrations in the area of environmental protection;

—realization of international cooperation in the area of environmental protection and the study, summarization and dissemination of international experience, and assurance that the Russian Federation's obligations under international agreements in the area of environmental protection will be performed.

Decisions by duly authorized Russian Federation organs in the area of environmental protection on matters under their jurisdiction are mandatory for all corporate bodies and citizens and may be appealed in court.

**Article 8: Authority of the Russian Federation's Constituent Republics, Autonomous Oblast and Autonomous Okrugs With Regard to Environmental Protection**

The following fall under the jurisdiction of the Russian Federation's constituent republics, autonomous oblast and autonomous okrugs in the area of environmental protection:

- definition of basic orientations for environmental protection, and approval of environmental programs;
- recording and assessment of the state of natural resources, record keeping on environmentally harmful sites and maintenance of cadastral maps of natural resources;
- planning of environmental protection and natural resource utilization, and financing and material-technical supply for environmental programs;
- coordination of environmental protection work by organs of state administration, enterprises, institutions and organizations, and assistance with voluntary cooperative funding for the implementation of environmental protection measures;
- issuing of licenses granting the right to use land, underground resources, water, forests and other vegetation or animal life, or to dispose of, process, bury (or store) industrial, municipal, household and other wastes;
- establishment of differentiated payment rates for use of natural resources and for pollutant emissions and discharges;
- guidance of the environmental service and conducting of state environmental assessments;
- state environmental monitoring and decision making in regard to restrictions on, suspension of or termination of operations by facilities adversely affecting the environment;
- establishment of nature preserves;
- environmental training, education and instruction;
- provision of essential environmental information to the public;

—consideration of other matters not under the jurisdiction of the Russian Federation.

#### **Article 9: Authority of Krays and Oblasts in the Area of Environmental Protection**

The following fall under the jurisdiction of krays and oblasts in the area of environmental protection:

- definition of basic directions for environmental protection and approval of regional environmental programs;
- recording and assessment of the volume of wastes produced during production and consumption of various products by enterprises, institutions and organizations located within their regions, regardless of their form of ownership or subordination;
- planning of environmental protection, and provision of financing and material-technical support for environmental protection measures;
- coordination of environmental protection activities by organs of state administration, enterprises, institutions and organizations, and assistance with volunteer cooperative efforts to carry out environmental protection measures;
- coordination of activities by the environmental services of enterprises, institutions and organizations regardless of their form of ownership or subordination; conducting of environmental assessments of projects;
- state environmental monitoring and decision making in regard to restriction, suspension or termination of operations by facilities which do not meet the stipulations of environmental protection legislation;
- bans on the construction of environmentally harmful facilities;
- issuing of permits granting the right to use the environment and its resources, to emit or discharge harmful substances, or to house, process, stockpile or bury wastes;
- organization of industrial and household waste collection and reuse;
- establishment of specially protected natural areas;
- organization of environmental training, education and instruction;
- provision of essential environmental information to the public.

#### **Article 10: Authority of Local Self-Government Organs in the Area of Environmental Protection**

The following fall under the jurisdiction of organs of local self-government in the area of environmental protection:

- definition of basic directions for environmental protection and development of environmental programs;

—recording and assessment of the state of the environment in the areas under their jurisdiction;

—recording and assessment of the volume of production wastes at facilities located within areas under their jurisdiction, regardless of form of ownership or subordination;

—planning, financing and material-technical supply for environmental protection measures;

—coordination of activities by the environmental services of enterprises, institutions and organizations regardless of their form of ownership or subordination;

—arrangement of environmental assessments of projects and state environmental monitoring of the state of the environment;

—issuing of licenses for certain types of natural resource use, for emission or discharge of harmful substances and for the burial of toxic wastes;

—decision making in regard to restriction, suspension or termination of environmentally harmful activities;

—resolution of disputes in the area of environmental protection;

—protection of natural landmarks and other specially protected natural areas;

—environmental training, education and instruction;

—provision of essential environmental information to the public; resolution of other environmental protection matters which fall under the jurisdiction of local soviets of people's deputies and the local administration in accordance with the RSFSR law "On Local Self-Government in the RSFSR."

### **Section II: The Right of Citizens to a Healthy and Livable Environment**

#### **Article 11: The Right of Citizens to Protection of Health From Adverse Environmental Effects**

Every citizen has a right to the protection of his or her health from adverse environmental effects caused by commercial or other activities, accidents and manmade or natural disasters.

That right is ensured:

- by environmental protection planning and quality standards and measures to prevent environmentally harmful activities, to restore the environment and to prevent or eliminate the effects of accidents and manmade or natural disasters;

- social and state insurance of citizens, formation of state and public reserve funds and other assistance funds, and provision of medical services to the public;
- granting of real opportunities to each individual to live in a viable and healthy environment;
- compensation by court decision or an administrative basis for damages caused to citizens' health as a result of environmental pollution and other adverse effects on the environment, including the effects of accidents and manmade disasters;
- state monitoring of the state of the environment and compliance with environmental protection legislation, and prosecution of individuals guilty of violating public environmental safety standards.

#### **Article 12: Citizens' Powers With Regard to Environmental Protection**

Citizens are obligated:

- to participate in environmental protection, comply with the requirements of environmental protection legislation and environmental quality standards, protect and multiply natural riches through their personal efforts, constantly raise the level of their knowledge of nature and their environmental awareness, and aid in the environmental education of the next generation.

Citizens have a right:

- to establish public environmental protection associations, funds and other public groups connected with environmental protection, to join such associations and funds, and to contribute their earned income;
- to take part in meetings, rallies, picket lines, marches and demonstrations, petition drives or referendums on environmental protection, to express their opinion, and to write letters, complaints and statements on environmental protection matters and demand that they receive consideration;
- to demand that the appropriate organs provide prompt, full and reliable information about the state of the environment and measures to protect it;
- demand that decisions permitting the siting, planning, construction, rebuilding or operation of environmentally harmful facilities be rescinded either by administrative means or by court order, and to demand restriction, suspension or termination of the operations of enterprises and other facilities which have a negative effect on the environment and on human health;
- raise the issue of prosecution of guilty officials and private citizens and file suit seeking compensation for damages caused to citizens' health or property by environmental lawbreaking.

#### **Article 13: The Power of Public Environmental Associations With Regard to Environmental Protection**

Environmental associations and other public associations which perform environmental functions have a right:

- to develop, approve and promote their own environmental programs, protect the public's environmental rights and interests, develop the public's environmental awareness, and engage citizens in active environmental protection efforts on a voluntary basis;
- to use their own funds and volunteer labor to do work in connection with the protection and renewal of natural resources and improvement of the environment, to render all possible assistance to state organs in their struggle against those who violate environmental protection legislation, and to establish public environmental protection funds and spend those monies on implementation of environmental measures;
- to recommend their own representatives for participation in state environmental assessments in regard to the siting and planning of facilities, to carry out public environmental assessments, and to demand the repeal on an administrative basis or by court order of decisions to site, build or operate environmentally harmful facilities or to demand restriction, suspension, termination or reorientation of their activities;
- to demand that prompt, reliable and complete information be provided regarding environmental pollution and environmental protection measures;
- to organize meetings, rallies, picket lines, marches, demonstrations and petition drives and gather signatures, and to make proposals regarding discussion of projects and referendums;
- to demand that a state environmental assessment be ordered, and to outline an environmental platform via the mass media;
- to raise the question of prosecution of guilty officials and to file in court or with an arbitration tribunal lawsuits seeking compensation for damages to citizens' health and property stemming from violations of environmental legislation.

The environmental activities of public associations should be conducted in full accordance with their charters and the laws of the Russian Federation and its constituent republics.

#### **Article 14: State Guarantees of the Environmental Rights of Citizens and Public Associations**

The state guarantees environmental associations, other public associations which perform environmental functions and private citizens an opportunity to exercise the rights granted to them in the area of environmental

protection in accordance with the laws of the Russian Federation and its constituent republics.

Soviets of people's deputies, their executive and administrative organs, duly authorized state organs in the area of environmental protection and officials thereof are obligated to render all possible assistance to public associations and private citizens with the exercise of their environmental rights and duties, and to take necessary steps to carry out their suggestions and demands with regard to environmental protection activity.

Officials and private citizens who hinder the exercise of the environmental rights and duties stemming from the RSFSR Constitution and the present law by public associations and individual citizens may be prosecuted in accordance with the laws of the Russian Federation and its constituent republics.

### **Section III: The Economic Mechanism of Environmental Protection**

#### **Article 15: Purposes of the Economic Mechanism of Environmental Protection**

The economic mechanism of environmental protection has as its purposes:

- the planning and financing of environmental protection measures;
- the establishment of limits on the use of natural resources, emission and discharge of pollutants into the environment and waste storage;
- establishment of standards for the payment and amount of payment for use of natural resources, emission and discharge of pollutants into the environment, waste storage and other types of adverse influences;
- granting of tax breaks, credits and other benefits to enterprises, institutions, organizations and private citizens who introduce into use low-waste and resource-conserving technologies and non-traditional energy sources and carry out other effective environmental protection measures;
- compensation according to established procedure for damages caused to the environment and human health.

#### **Article 16: Recording and Socioeconomic Assessment of Natural Resources**

1. State environmental protection organs of the Russian Federation in conjunction with state statistical and natural resource organs maintain quantitative and qualitative records of natural resources and secondary raw materials and provide a socioeconomic assessment thereof.

2. The tasks of state environmental protection organs include the keeping of state land, water and forest

cadastral maps and state cadastral maps of underground resources, animal life and specially protected areas and sites.

#### **Article 17: Planning, Financing and Material-Technical Support for Environmental Programs and Environmental Protection Measures**

1. Planning of environmental protection and natural resources utilization measures is to be carried out as part of programs and projections of socioeconomic development based on the state environmental program, with consideration given to the natural resource potential of individual regions.

2. Financing for environmental programs and environmental protection measures comes from:

- the Russian Federation's republic budget, the budgets of the Russian Federation's constituent republics, and the budgets of the autonomous oblast, autonomous okrugs, oblasts, krais and local soviets of people's deputies;
- funding from enterprises, institutions and organizations;
- federal, republic, kray, oblast and local environmental funds;
- environmental insurance funds;
- bank loans;
- voluntary contributions from the public, foreign corporate bodies, foreign citizens and other sources.

3. Financing of environmental programs and environmental protection measures is to be designated as a separate item in federal, republic and other budgets and backed up with adequate physical and technical resources.

#### **Article 18: Contract and License for Comprehensive Natural Resource Utilization**

1. A contract for comprehensive natural resource utilization is to be concluded between the natural resource user and the executive authority of a kray, oblast, autonomous oblast, autonomous okrug, rayon or city on the basis of an environmental assessment of the proposed commercial or other activity and a license (permit) permitting comprehensive natural resource utilization.

2. A contract for comprehensive natural resource utilization stipulates the terms and procedures for use of natural resources, the rights and obligations of the user, the amount of payment for use of natural resources, the contracting parties' responsibilities, the procedure for compensation for damages and the procedure for resolving disputes.

3. A license (permit) permitting comprehensive natural resource utilization is issued to the user by duly authorized state organs of the Russian Federation operating in the area of environmental protection, indicating the following:

- the types, volumes of and limits on commercial natural resource use;
- the environmental conditions under which use of the natural resources is permitted and the consequence of failure to abide by those conditions.

#### **Article 19: Limits on Natural Resource Utilization**

1. Limits on natural resource utilization are a system of regionally-based environmental restrictions and represent the volumes of maximum permissible use (or extraction) of natural resources, emissions and discharges of pollutants into the environment and storage of production wastes assigned to natural resource-utilizing enterprises.

2. Limits on natural resource utilization are established for natural resource-using enterprises by duly authorized organs of the Russian Federation operating in the area of environmental protection based on the necessity of gradually achieving standard volumes for use (or extraction) of natural resources, maximum permissible emission and discharge of pollutants into the atmosphere and standardized volumes of production waste storage, with consideration for the region's environmental situation.

3. The time limit for achieving standard volumes of natural resource utilization and annual limits are to be established in accordance with the approved indices contained in state and regional environmental programs.

#### **Article 20: Payment for Use of Natural Resources**

1. Payment for use of natural resources includes payment for natural resources, for environmental pollution and for other types of effects.

2. Payment for natural resources (land, underground resources, water, forests and other vegetation, animal life, recreational resources and other natural resources) is charged:

- for the right to use natural resources within the bounds of established limits;
- for above-limit and irrational use of natural resources;
- for renewal and preservation of natural resources.

3. Payment for environmental pollution and other types of effects are charged:

- for emission and discharge of pollutants, waste storage and other types of pollution within the bounds of established limits;
- for emission and discharge of pollutants, waste storage and other types of pollution beyond the bounds of established limits.

4.\* Payment for standard and above-standard emission or discharge of harmful substances and waste storage is to be paid by enterprises, institutions and organizations strictly according to the following procedure: 90 percent to special non-budget state environmental funds, and 10 percent to the republic budget of the Russian Federation for the purpose of financing the operations of regional organs of the state environmental protection organ.

5. The procedure for listing and application of standard payments for natural resource use is to be determined by the Government of the Russian Federation.

6. Payment for the use of natural resources does not exempt the user from performance of environmental protection measures or from compensation for damages caused by violations of environmental protection legislation.

#### **Article 21: Environmental Funds**

1. For the purpose of performing urgent environmental protection tasks, restoring environmental losses, providing compensation for damages caused and other environmental protection tasks a unified system of non-budgetary state environmental funds may be established, combining the federal environmental fund with republic, kray, oblast and local funds.

2. These funds are formed using funds received from enterprises, institutions, organizations, private citizens and foreign corporate bodies and citizens, including:

- payments for the emission or discharge of pollutants into the environment, waste storage and other types of pollution;
- sums received on the basis of lawsuits seeking compensation for damages and fines for violations of environmental legislation;
- funds from the sale of confiscated hunting and fishing gear and the fish and game illegally obtained through use of it;
- money received in the form of dividends and interest on contributions, bank deposits and shareholder participation of the fund's own monies in the operations of enterprises and other corporate bodies;
- foreign currency receipts from foreign corporate bodies and citizens.

3. The monies of environmental funds are to be paid into special accounts with banking institutions and distributed in the following proportion:

- 60 percent to realization of environmental protection measures at the local (city and rayon) level;

—30 percent to realization of environmental protection measures at the republic, kray or oblast level;

—10 percent to realization of environmental protection measures at the federal level.

4. Environmental fund monies are to be spent for restoration of the environment and population, the conducting of environmental protection measures and programs, renewal of natural resources, scientific research, introduction of environmentally clean technologies, construction of air and water purification facilities, payment of compensation to citizens for damages caused to their health by pollution and other adverse effects on the environment, development of environmental training and education, and other purposes connected with environmental protection.

5. It is forbidden for environmental fund monies to be spent on goals which are not connected with environmental protection.

#### **Article 22: Public Environmental Protection Funds**

Public environmental protection funds are created using funds from the general public, voluntary contributions from public organizations, and other sources. These funds are established by public environmental associations and trade unions in the Russian Federation, and their monies may be spent exclusively for environmental protection. The procedure for accumulation and expenditure of these funds is to be determined by the public associations which founded them.

#### **Article 23: Environmental Insurance**

1. Within the Russian Federation there exists voluntary and mandatory state environmental insurance for enterprises, institutions and organizations as well as individual citizens, their property and their income against the possibility of environmental or natural disasters or accidents and manmade disasters.

2. Environmental insurance funds are used to project, prevent and eliminate the effects of environmental and natural disasters, accidents and manmade disasters.

3. The procedures for environmental insurance and use of funds are to be established by the Government of the Russian Federation.

#### **Article 24: Economic Incentives for Environmental Protection**

1. In the Russian Federation incentives for rational use of natural resources and environmental protection are provided by means of:

—establishment of tax breaks and other benefits for state-owned and other enterprises, institutions and organizations, including those engaged in environmental protection, which introduce into use low-waste and no-waste technologies and means of production,

use secondary resources, and engage in other activities which serve to protect the environment;

—tax exemptions for environmental funds;

—transfer of a portion of funds from environmental funds to interest-bearing loans to enterprises, institutions, organizations and individual citizens to finance measures guaranteed to reduce pollutant emission or discharge;

—establishment of higher amortization rates for fixed production capital belonging to environmental protection funds;

—setting of special reduced prices and bonuses for use of environmentally sound products;

—introduction of a special system of taxation on environmentally harmful products, as well as products produced using environmentally hazardous technologies;

—granting of advantageous loans to enterprises, institutions and organizations which are implementing effective environmental protection measures, regardless of their form of ownership.

2. The legislation of the Russian Federation and its constituent republics may also establish other types of economic incentives for environmental protection.

### **Section IV: Environmental Quality Standards**

#### **Article 25: Basic Requirements of Environmental Quality Standards**

1. Establishment of environmental quality standards is done for the purpose of setting maximum permissible limits on effects on the environment which will guarantee the public's environmental safety and preserve the genetic pool and will ensure rational use and renewal of natural resources coupled with continuing development of commercial activity.

2. Standards for maximum permissible levels of harmful effects as well as the methods for determining those levels are to be approved by duly authorized state organs of the Russian Federation in the area of environmental protection and sanitation and epidemiological oversight and improved with a view toward international standards as science and technology advance.

3. Upon violation of the requirements of environmental quality standards the emission or discharge of harmful substances or other types of environmental effects may be restricted, suspended or terminated by order of duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight.

**Article 26: Standards for Maximum Permissible Concentrations of Harmful Substances**

1. Standards for maximum permissible concentrations of harmful substances or harmful microorganisms and other biological substances which pollute the atmosphere, water or soils are to be established for the purpose of assessing the state of the environment for the purposes of protecting human health, preserving the genetic pool and protecting plant and animal life.

2. Stricter standards for maximum permissible harmful effects on the environment may be established for certain areas (nature and game preserves, vacation areas and recreation areas) in view of their unique natural and climatic conditions and their greater social value.

**Article 27: Standards for Maximum Permissible Emission and Discharge of Harmful Substances**

1. Standards governing maximum permissible emission and discharge of harmful substances, along with harmful microorganism and other biological substances which pollute the atmosphere, water or soils, are to be established with consideration for the production capacity of a given facility and information regarding the existence of a mutagenic effect or other adverse effects for each source of pollution based on current standards for maximum permissible concentrations of harmful substances in the environment.

2. Standards for maximum permissible emission and discharge are to be approved by duly authorized state organs of the Russian Federation in the area of environmental protection (for chemical substances) and sanitary and epidemiological oversight agencies (for microorganisms and biological substances).

**Article 28: Standards for Maximum Permissible Levels of Noise, Vibration, Magnetic Fields and Other Adverse Physical Effects**

1. Standards for maximum permissible levels of noise, vibration, magnetic fields and other adverse physical effects are to be set at a level which will ensure protection for people's health and work ability, will protect plant and animal life and will contribute to the viability of the environment.

2. The aforementioned standards are to be confirmed by duly authorized state organs of the Russian Federation in the area of environmental protection or sanitary and epidemiological oversight.

**Article 29: Standards for Maximum Permissible Radiation Levels**

1. Standards for maximum permissible levels of safe concentrations of radioactive substances in the environment and in food products and the maximum permissible level of irradiation of the public are to be established within limits which do not represent a threat to human health or the human genetic pool. These standards should be approved by duly authorized Russian

Federation state organs in the area of environmental protection or sanitary and epidemiological oversight.

2. The public should be supplied with radiometric devices to ensure ongoing monitoring of the radiation level. Procedure for the supply thereof and a list of the devices in question are to be approved by the Government of the Russian Federation.

**Article 30: Maximum Permissible Standards for the Use of Agricultural Chemicals in Agriculture**

1. The maximum permissible standards for use of chemical fertilizers, pesticides, growth stimulators and other agricultural chemicals in agriculture are to be established at doses which will ensure compliance with standards for maximum permissible residual quantities of those chemical substances in food products and will protect human health and the human genetic pool and plant and animal life.

2. The aforementioned standards are to be approved by duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight upon recommendations from the agro-chemical service of the Russian Federation and with consideration given to international standards.

**Article 31: Standards for Maximum Permissible Residual Quantities of Chemical Substances in Food Products**

1. Standards for maximum permissible residual quantities of harmful chemical substances in food products are to be established by means of determining the minimum permissible dose which is harmless to human health for each chemical substance used and for their combined effect.

2. The aforementioned standards are to be approved by Russian Federation state organs for sanitary and epidemiological oversight in consultation with the state agro-chemical service of the Russian Federation.

**Article 32: Environmental Requirements for Products**

1. Standards for new equipment, technologies, materials, substances and other products which could have a harmful effect on the environment should include environmental requirements which will prevent harm to the environment, human health and the human genetic pool.

2. Environmental requirements for products for production and consumption purposes should ensure compliance with standards for maximum permissible effects on the environment in the process of production, storage, transportation and use of those products.

3. The aforementioned requirements and methods of arriving at them are to be approved by duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight.

**Article 33: Maximum Permissible Environmental Burden Standards**

When regional production complexes are being created and industry, agriculture, construction and rebuilding of cities and other population centers are being developed maximum permissible limits for environmental burden should be developed, taking into consideration the environment's potential capacity, the need for rational utilization of regional and natural resources in order to ensure more livable conditions, and the impermissibility of destroying natural ecological systems or causing irreversible changes in the environment.

**Article 34: Standards for Sanitary and Protective Zones**

Standards for sanitary and protective zones and sanitary protection zones are to be established to safeguard bodies of water and other water supply sources, resort areas, therapeutic resort zones, population centers and other areas from pollution and other harmful effects.

**Section V: State Environmental Assessments****Article 35: The Goals and Principles of State Environmental Assessments**

1. State environmental assessments are to be conducted for the purpose of determining the appropriateness of commercial or other activities in terms of society's environmental safety.
2. State environmental assessments are to be conducted according to the principles that assessments be mandatory and scientifically based, produce legitimate findings, be independent and not be narrowly departmental in their organization and implementation, and should involved broad publicity and public input.

**Article 36: The Mandatory Nature of State Environmental Assessments**

1. State environmental assessments are a mandatory environmental protection measure preceding the making of a commercial decision, implementation of which could have an adverse effect on the environment.
2. The financing and realization of work on all projects and programs should be carried out only after a state environmental assessment has produced a positive finding.
3. The procedure for conducting state environmental assessments of facilities of federal, republic or local importance is regulated by the legislation of the Russian Federation and its constituent republics.

**Article 37: Subjects of State Environmental Assessments**

Subject to state environmental assessments are all pre-planning, pre-project and project materials pertaining to sites and measures planned for realization within the territory of the Russian Federation, regardless of their

estimated cost or ownership, as are the environmental grounds for the issuing of licenses and certificates.

**Article 38: Liability for Failure to Comply With the Requirements of State Environmental Assessments and the Responsibility of Experts**

1. The directors of enterprises, institutions or organizations, other officials and personnel and private citizens are liable for failure to comply with the requirements contained in the findings of state environmental assessments in accordance with current legislation.
2. The chairman and members of commissions of experts conducting the assessments bear responsible for the accuracy and validity of their findings in accordance with the laws of the Russian Federation. The conclusions of a commission of experts may be appealed in court or before an arbitration tribunal.

**Article 39: Execution of Environmental Assessments**

1. Public environmental assessments conducted by scientific collectives or public associations at their own initiative may become legally binding following confirmation of their findings by appropriate state environmental assessment organs.
2. The chairman and members of public collectives of experts bear responsible for the accuracy and validity of their expert assessments in accordance with the legislation of the Russian Federation.

**Section VI: Environmental Requirements in Connection With the Siting, Planning, Construction, Rebuilding or Startup of Enterprises, Installation and Other Facilities****Article 40: General Environmental Requirements for the Siting, Planning, Construction, Rebuilding or Startup of Enterprises, Installations and Other Facilities**

1. In the process of the siting, technical and economic project justification, planning, construction, rebuilding or startup of enterprises and other facilities in industry, agriculture, transportation, energy production, maritime industry or municipal services or during the laying of electrical lines, communication lines or pipelines or construction of canals and other facilities which could have either a direct or indirect effect on the state of the environment, requirements ensuring protection of the environment and public health should be observed and steps taken to protect the environment, make rational use of and renew natural resources, and restore the environment.
2. Violation of the aforementioned requirements will result in suspension of operations until such time as the shortcomings have been eliminated or complete termination of efforts to site, plan, build, rebuild or start up environmentally harmful facilities; this may be done by order of duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight.

**Article 41: Environmental Requirements Pertaining to the Siting of Enterprises, Installations and Other Facilities**

1. When enterprises, installations and other facilities are sited compliance with environmental protection requirements, rational use and renewal of natural resources, recording of the immediate and long-range ecological, economic, demographic and moral effects of the aforementioned facilities should be assured, with priority given to protection for human health and the public's welfare.

2. Selection of sites for the construction of enterprises, installations and other facilities should be carried out in accordance with Article 28 of the RSFSR Land Code and Article 11 of the RSFSR law: "On the Sanitary and Epidemiological Welfare of the Public," and subsequent to receiving a positive finding from duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight and a decision by local organs of self-government. If necessary, decisions as to the siting of facilities which affect the public's environmental interests will be based on the outcome of a discussion or referendum.

3. The decision to site major economic facilities should be made by the Russian Federation Supreme Soviet or the supreme soviets of the Russian Federation's constituent republics based on the findings of a state environmental assessment.

**Article 42: Environmental Requirements for the Technical and Economic Justification of Projects and Planning for Enterprises, Installations and Other Facilities**

1. During the technical and economic justification of projects and the planning of enterprises, installations and other facilities consideration should be given to the current level of scientific and technical progress and to the maximum permissible environmental burden and provision made for reliable and effective measures to prevent or eliminate environmental pollution by harmful substances, the neutralization and utilization thereof, introduction of resource-conserving, low-waste and no-waste technologies and types of production, rational use and renewal of natural resources and restoration of the environment.

2. The technical and economic justification for projects and plans for the construction of enterprises, installations and other facilities should undergo state environmental assessment, and if necessary public environmental assessment as well.

3. Projects which do not meet environmental requirements will not be approved, and work to carry them out will not be financed by the banking institutions involved.

**Article 43: Environmental Requirements for the Building or Rebuilding of Enterprises, Installations and Other Facilities**

1. The building or rebuilding of enterprises, installations and other facilities must be carried out on the basis of approved plans which have received a positive state environmental assessment and which are in strict compliance with current environmental protection, public sanitation and construction standards and regulations.

2. It is forbidden to build or rebuild facilities prior to approval of a plan and allotment of a specific parcel of land for the project. It is not permitted to make changes in an approved project or the cost of planned work to the detriment of environmental safety requirements.

3. When construction work is done measures must be taken to protect the environment, ensure rational use of natural resources, recultivate the land and other resources, landscape the area and restore the environment.

4. Violation of the requirements set forth in the present article of this law will result in suspension of the construction work until such time as the shortcomings have been eliminated; this may be done by duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight, with simultaneous suspension of financing for that work by the banking institutions involved.

**Article 44: Environmental Requirements Upon Startup of Enterprises, Installations and Other Facilities**

1. Startup of enterprises, installations and other facilities is to be carried out on the condition that all environmental requirements set forth in the plan have been complied with in full and on the basis of documents issued by acceptance commissions created in conjunction with representatives of duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight.

2. It is forbidden to put into operation facilities which are not equipped with modern technologies, installations and equipment for the treatment, neutralization and utilization of harmful wastes, emissions and discharges to the level of maximum permissible standards, as well as means of monitoring environmental pollution, or without completion of planned environmental protection work, recultivation of land or restoration of the environment.

3. The chairmen and members of acceptance commissions bear personal responsibility for violation of procedures governing the approval of completed facilities in accordance with the legislation of the Russian Federation.

**Section VII: Environmental Requirements Pertaining to the Operation of Enterprises, Installations and Other Facilities or Performance of Other Activities**

**Article 45: General Environmental Requirements for the Operation of Enterprises, Installations and Other Facilities**

1. Enterprises, institutions, organizations and individual citizens are obligated to take effective measures to comply with the technological regime of and to meet the requirements for environmental protection, rational use of natural resources and restoration of the environment.

2. Enterprises, institutions, organizations and individual citizens must comply with established environmental quality standards through application of approved technologies, introduction of environmentally safe technologies and types of production, reliable and efficient operation of anti-pollution installations and equipment and means of pollution monitoring, neutralization and utilization of wastes, and to take measures to protect the land, underground resources, water, forests and other vegetation and animal life and renew natural resources.

3. Emission or discharge of harmful substances and burial of wastes are permitted on the basis of permits issued by duly authorized Russian Federation state organs in the area of environmental protection. These permits establish standards for maximum permissible emission or discharge of harmful substances and other conditions which will ensure protection for the environment and human health.

4. For the purpose of transition to standards for maximum permissible emission or discharge of harmful substances, temporarily agreed-upon standards (limits) on the emission or discharge of harmful substances may be established, with simultaneous approval of a plan for reducing the volume of emission or discharge to specified maximum levels.

5. Violations of established standards for the emission, discharge or burial of harmful substances and other environmental protection conditions and requirements specified in a permit for the emission, discharge or burial of harmful substances or standards governing threats to human health will result in restriction, suspension or termination of the operations of enterprises, institutions or organizations and branches, departments, shops or installations thereof by order of duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight, as well as Russian Federation trade unions, with simultaneous suspension of financing from banking institutions for the activities in question.

6. Reorientation of activities by environmentally harmful facilities must be carried in consultation with duly authorized Russian Federation state organs in the area of environmental pollution or sanitary and epidemiological oversight.

**Article 46: Environmental Requirements Pertaining to Agriculture**

1. Enterprises, associations organizations and individual citizens engaged in agriculture are obligated to carry out a number of measures to protect soils, bodies of water, forests and other vegetation and animal life from the harmful effects of natural forces, side effects from the use of complex agricultural equipment, chemical substances, land improvement work and other factors which degrade the state of the environment and harm human health.

2. Livestock farms and complexes and enterprises which process agricultural produce must have adequate sanitary protection zones and treatment facilities to prevent pollution of soils, surface water, ground water and the atmosphere. Violation of these requirements causing harm to the environment and human health will result in restriction, suspension or termination of environmentally harmful activities by agricultural and other facilities by order of duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight.

**Article 47: Environmental Requirements for the Planning, Design or Execution of Land Reclamation Work**

1. Enterprises, institutions, organizations and individual citizens are obligated when planning, designing or executing land reclamation work and using reclamation systems to maintain the water balance and ensure rational utilization of the land, economical water usage, protection for the land, forests and other vegetation from depletion, flooding or ground water rise and to prevent other adverse environmental effects.

2. Violation of these requirements will result in suspension of the planning, construction or use of those systems until the shortcomings are eliminated or termination of such work by order of duly authorized Russian Federation state organs in the area of environmental protection, with simultaneous termination of financing of the work by banking institutions.

**Article 48: Environmental Requirements for Energy Production Facilities**

1. The siting, planning, construction and operation of energy production enterprises, installations and other facilities must be carried out in accordance with the requirements contained in articles 40-45 of the present law.

2. During the siting, planning and construction of hydroelectric power plants full consideration must be given to the actual electric power needs of the region in question, the local topography of the site, measures to ensure maximum preservation of the land and forests, population centers and natural, historical and cultural landmarks, and to ensure effective protection of fish, timely utilization of timber and fertile soil layers during clearing and flooding of the reservoir, and to prevent negative environmental changes.

3. During the siting, planning, construction, startup and operation of nuclear power plants measures must be taken to ensure the complete radiation safety of the environment and the population in accordance with international regulations. It is forbidden to site, plan or build nuclear power plants in areas with a large concentration of population, resorts, recreational areas or therapeutic resort areas, in sanitary protection zones, in active seismic zones, in the vicinity of large bodies of water of republic importance, or near traditional sites of large-scale public recreation and treatment.

4. During the planning and construction of thermal electric power stations it is essential that provision be made to equip them with highly efficient filters and other means of removing harmful wastes, emissions and discharges and to utilize environmentally safe types of fuel.

5. Violation of these requirements will result in suspension of the planning, construction or operation of energy production facilities until such time as the shortcomings discovered have been eliminated, or termination of their operations by order of duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight.

**Article 49: Environmental Requirements for the Planning, Building or Rebuilding of Cities and Other Population Centers**

1. The planning, building or rebuilding of cities and other population centers must meet the requirements contained in Article 11 of the RSFSR law "On the Sanitary and Epidemiological Welfare of the Public" and the present law and provide the population with the most favorable environmental conditions for life, work and recreation. Industrial and transportation enterprises and installations, principal lines of transportation and other commercial facilities must be located in such a way as to preclude the negative effect of harmful factors on the public's health and sanitary conditions.

2. During the planning and building of cities and other population centers provision should be made for the sanitary purification, neutralization, utilization, storage, environmentally safe removal, processing or burial of municipal and household wastes.

3. In order to protect the environment around major cities and industrial centers and environmentally harmful facilities forest parks, green belts and protective zones are to be established and withdrawn from intensive commercial use, with restricted natural resource use allowed.

**Article 50: Environmental Requirements Governing the Use of Radioactive Materials**

1. Enterprises, institutions, organizations and individual citizens are obligated to comply with regulations governing the production, storage, transport, use, utilization, removal and burial of radioactive substances (sources of ionizing radiation and nuclear materials) and

not permit levels of radiation higher than permissible standards, or in the event that those standard levels are exceeded to immediately inform organs which oversee radiation safety of excessive radiation levels presenting a threat to human health and the environment, and take measures to eliminate the pollution sources.

2. Enterprises, institutions, organizations and individual citizens that do not comply with regulations governing the handling of radioactive materials may by order of duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight be denied the right to use those materials, or have their operations involving the use of such materials suspended until such time as the shortcomings have been eliminated.

3. Importation of radioactive wastes and materials from other states for the purposes of storage or burial, the disposal of radioactive materials underwater or the sending of such materials into outer space for disposal is forbidden.

**Article 51: Environmental Requirements Governing the Commercial Use of Chemical Substances**

1. Enterprises, institutions, organizations, officials thereof and individual citizens are obligated to abide by regulations governing the production, storage, transport and use of chemical substances which are used in agriculture as pesticides, growth stimulators and chemical fertilizers or in other sectors of the economy, and to comply with established standards for the use thereof and take steps to prevent adverse effects from their use on human health and the environment.

2. The State Committee for Sanitary and Epidemiological Oversight under the President of the Russian Federation shall in conjunction with Russian Federation Ministry of Agriculture organs periodically approve a list of chemical compounds approved for use in agriculture, as well as maximum permissible standards for residual content of chemical substances in food products.

3. Use of new chemical substances capable of having a direct or indirect effect on human health is permitted only with permission from the State Committee for Sanitary and Epidemiological Oversight under the President of the Russian Federation. It is forbidden to use toxic chemical compounds which do not break down or have an active effect on the human organism or the environment. Regulations governing protection of the environment intended to protect human health from the harmful effects of chemical substances used in the economy are to be approved by duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight.

4. Violation of the aforementioned regulations which present a threat to human health from chemical pollution of the environment will result in a ban on the production, storage, transport or use of the chemical

compounds in question, if so resolved by the Russian Federation State Committee for Sanitary and Epidemiological Oversight.

#### **Article 52: Protection of the Environment From Harmful Biological Effects**

1. During the siting, planning, construction, startup and use of enterprises, installations and other facilities and technologies which have a harmful effect on the environment standards for maximum permissible concentrations of microbes, fungi, viruses and other types of microorganisms and biological substances in the environment must be complied with; those standards are to be approved by duly authorized Russian Federation state organs in the field of sanitary and epidemiological oversight.

2. Enterprises, institutions, organizations or private citizens capable of having a biological effect on the environment are obligated to ensure environmentally safe production, storage, transport, use and disposal of microorganisms and biological substances, and develop and carry out measures to prevent accidents and disasters, and to prevent adverse biological effects on the environment, human health and the human genetic pool and eliminate the consequences thereof.

3. It is forbidden to use or cultivate biologicals which are not native to a region or biologicals obtained by artificial means unless effective measures have been developed to prevent the uncontrolled spread thereof.

4. Observation of and recording of sources of biological effects on the environment and monitoring of the level thereof are to be conducted by duly authorized Russian Federation state organs in the field of sanitary and epidemiological oversight.

5. Levels in excess of established standards for maximum permissible levels of biological effect on the environment and violation of procedures for the production, storage and use of biological types of microorganisms and substances will result in suspension or termination of the operations of the enterprises or other facilities which are the sources of the pollution in question by orders of duly authorized Russian Federation state organs in the field of sanitary and epidemiological oversight.

#### **Article 53: Protection of the Environment From Noise, Vibration, Magnetic Fields and Other Adverse Physical Effects**

1. Local soviets of people's deputies, enterprises, institutions, organizations and individual citizens are obligated to take the measures necessary to prevent adverse effects from and eliminate intensive production-related noise and vibration, the harmful effects of magnetic fields and other adverse physical influences on the environment in production areas, public buildings and residential buildings, on streets, in courtyards, in the

squares of cities and other population centers, in suburban recreational zones, at mass gathering sites and at wildlife breeding grounds.

2. It is forbidden to exceed standards for maximum permissible levels of influence on human health and the environment by production-related and transportation-related noise, vibration, magnetic fields and other harmful physical effects. Measures to guarantee compliance with the aforementioned standards must be developed in the course of the planning and construction of cities and other population centers, planning for the building or rebuilding of enterprises, shops or production lines, creation and introduction into use of new equipment, and the rebuilding, planning and use of ground, water and air transportation.

3. Violation of the aforementioned standards will result in suspension of or termination of the operation of enterprises, shops, units of machinery and other equipment or operation of means of transportation and other sources of harmful effects from noise, vibration, magnetic fields and other harmful physical influences until such time as the shortcomings in question have been eliminated.

#### **Article 54: Protection of the Environment From Production-Related and Household Wastes**

1. Local soviets of people's deputies, enterprises, institutions, organizations and individual citizens are obligated to take effective measures to neutralize, process, utilize, store or bury production-related and household wastes, and to comply with current environmental, public-health and anti-epidemic standards and regulations.

2. The storage and burial of wastes must take place at sites specified by a decision of local government organs by agreement with duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight.

3. It is forbidden to discharge wastes and septic waste water into publicly used bodies of water or underground aquifers.

4. Burial of potentially dangerous and particularly toxic wastes must be carried out with permission from duly authorized Russian Federation state organs in the area of environmental protection in consultation with Russian Federation organs for sanitary and epidemiological oversight.

5. It is forbidden to store toxic wastes, including wastes from the nuclear industry, in areas near cities and other population centers, in forest preserves, in resort areas, in therapeutic and recreational zones and other places where they might present a threat to human health and the condition of the environment.

6. Permission for burial or other disposal of radioactive wastes must be issued by duly authorized Russian Federation state organs in the area of environmental protection in consultation with Russian Federation state organs for sanitary and epidemiological oversight.

7. Violation of the aforementioned regulations will result in restriction, suspension or termination of the operations of enterprises or other facilities by order of duly authorized Russian Federation state organs in the area of environmental protection or sanitary and epidemiological oversight.

**Article 55: Environmental Requirements Governing Military and Defense Facilities and Military Operations**

1. The environmental requirements set forth in the present law regarding the siting, construction, startup and use of enterprises, installations and other facilities are fully applicable to military and defense facilities and military operations carried out within the territory of the Russian Federation, and to the deployment of troops and military equipment (except in special situations).

2. Pursuant to the laws of the Russian Federation military organs are obligated to make compensation for damages caused to the environment or human health.

**Article 56: Protection of the Earth's Ozone Layer**

1. Protection of the environment from ecologically hazardous changes in the Earth's ozone layer is to be ensured by:

- observation, recording and monitoring of changes in climate and the ozone layer as a result of commercial activities and other processes;
- establishment of and compliance with standards for maximum permissible discharges of harmful substances which effect the condition of climate and the ozone layer;
- regulation of the production and household use of chemical substances which destroy the ozone layer;
- imposition of punitive measures in response to violation of these requirements.

2. In accordance with an international agreement ministries, agencies, enterprises, institutions and organizations are obligated to reduce and eventually completely cease the production and use of chemical substances which have an adverse effect on the ozone layer.

3. A list of chemical substances and production wastes which have an adverse effect on the condition of the Earth's ozone layer is to be approved by duly authorized Russian Federation state organs in the area of environmental protection and announced to all ministries, agencies, enterprises, institutions and organizations.

4. Monitoring of compliance with these requirements is to be carried out by duly authorized Russian Federation state organs in the field of environment protection.

5. Violation of established procedure for the production or use of chemical substances which adversely effect the condition of the ozone layer will result in suspension or termination of operations by enterprises, institutions, organizations, individuals citizens, units of machinery, production lines or equipment by order of duly authorized Russian Federation state organs in the area of environmental protection.

**Article 57: Drafting and Realization of Projects With Significant Environmental Effect**

It is forbidden to draft or realize economic projects which involve disruption or destruction of highly productive natural ecological systems and the natural balance, unfavorable changes in climate or the Earth's ozone layer, destruction of the genetic pool of plant and animal life, or other irreversible consequences for human health and the environment.

**Section VIII: Environmental Emergencies**

**Article 58: Environmental Emergency Zones**

1. Environmental emergency zones may be declared in sections of Russian Federation territory where as a result of commercial or other activities persistent negative changes have occurred in the environment which threaten public health, the state of ecological systems and the genetic stock of plants and animals.

2. Environmental emergency zones may be declared by decree of the Russian Federation Supreme Soviet or at the recommendation of duly authorized Russian Federation state organs in the area of environmental protection based on the findings of a state environmental assessment.

3. Within an environmental emergency zone the activity which has had a negative effect on the environment must be terminated and operations suspended at enterprises, institutions, organizations, shops, units of machinery and equipment which have an adverse effect on human health, the human genetic pool and the environment, restrictions must be placed on various types of natural resource use, and ongoing measures must be taken to restore and renew natural resources.

4. Financing of efforts to restore environmental emergency zones comes primarily from the funds of the ministries, agencies, enterprises, institutions and organizations directly responsible for environmental degradation, accidents or disasters, as well as from special purpose funds in the federal and republic budgets.

**Article 59: Environmental Disaster Areas**

1. Environmental disaster areas may be declared within sections of Russian Federation territory where as a result of commercial or other activities profound irreversible changes have occurred in the environment, resulting in a significant worsening of public health, disruption of the natural balance, destruction of natural ecological systems and degradation of flora and fauna.

2. Environmental disaster areas may be declared in the same manner as environmental emergency zones.

Within an environmental disaster zone the operations of commercial facilities are halted, except those which provide services to the population within the disaster zone; a ban must also be issued on all construction or rebuilding of commercial facilities, substantial restrictions placed on all types of natural resource use and ongoing measures taken to restore and renew natural resources and improve the condition of the environment.

3. Financing of measures to restore environmental disaster zones comes from the same sources outlined in the fourth part of Article 58 of the present law.

#### **Section IX: Specially Protected Natural Areas and Sites**

##### **Article 60: The Russian Federation Nature Preserve System**

1. State nature preserves, including biosphere preserves, state reserves, national parks, natural landmarks and rare or threatened plants and animals which have been registered in the Russian Federation Red Book and the red books of Russian Federation constituent republics together constitute the Russian Federation nature preserve system and are subject to special protection by the state for the sake of the present and future generations.

2. Removal of lands from the Russian Federation nature preserve system is forbidden.

3. The nature preserve system is under the jurisdiction and control of duly authorized state organs of the Russian Federation and its constituent republics in the area of environmental protection.

4. Regulations governing the nature preserve system and its component parts are set forth in the present law, legislation expanding upon it and other standardizing acts of the Russian Federation and its constituent republics.

##### **Article 61: State Nature Preserves**

1. State nature preserves are defined as natural complexes (land, underground resources, water, flora and fauna) which have been permanently removed from commercial use and which are not subject to expropriation by any means for any other purposes and are specially protected by law, which are of environmental protection-related, scientific or ecological educational significance as benchmarks for the natural environment, typical or rare landscapes, or places for the preservation of the genetic stock of plant and animal life.

2. State nature preserves are environmental protection research institutions which have as their purpose the preservation and study of typical and unique ecological systems, the genetic pool of living organisms and the natural course of processes and phenomena.

3. A separate component of state nature preserves are biosphere preserves officially recognized by UNESCO as

parts of an international network of observation stations for tracking changes in the state of the environment under the influence of human activities.

4. State nature preserves are established by the Government of the Russian Federation and the councils of ministers of the Russian Federation's constituent republics at the recommendation of duly authorized state organs of the Russian Federation and its constituent republics for the purpose of protecting natural complexes, preserving and renewing wild plant and animal life, studying the laws of nature and monitoring the state of the environment and changes therein.

5. Within the territory of state nature preserves it is forbidden to engage in commercial, recreational or other activities which run counter to the purposes of the preserve or which damage the environment. Research, restorative or fire protection work should not run counter to the goals of the preserve.

6. In order to maintain the preservation regime within a preserve, protective zones may be established around its territory, within the bounds of which zones it is forbidden to engage in activities which could have a negative effect on the preservation regime.

7. The preservation regime at state preserves is to be upheld by preserve patrol services.

##### **Article 62: State Nature Reserves**

1. State nature reserves are defined as natural complex intended for the preservation or renewal of certain types of natural resources in combination with restricted and authorized use of other types of natural resources.

2. State nature reserves of federal-wide significance are to be established by the Government of the Russian Federation at the recommendation of duly authorized Russian Federation state organs in the area of environmental protection; those of republic significance are to be established by the councils of ministers of the Russian Federation's constituent republics; those of local significance are to be established by decision of a kray or oblast soviet of people's deputies in consultation with duly authorized Russian Federation state organs in the area of environmental protection, with the goal of preserving or renewing natural resources, protecting natural landscapes, recreational areas and natural landmarks, and maintaining the ecological balance.

3. Commercial, recreational and other activities are forbidden within the territory of a reserve if they run counter to the goals for which the reserve was founded or damage the environment.

4. Enterprises, institutions and organizations within whose territory reserves have been established are obligated to take steps to ensure compliance with the preservation regime established for those reserves.

5. Internal reserves may be established by decision of the administration of agricultural, forestry, hunting and fishing enterprises, institutions and organizations on lands belonging to them for the purpose of ensuring rational land use and preservation of particularly valuable natural sites, as well as rational use of natural resources.

#### **Article 63: National Parks**

1. National parks are defined as specially protected natural complexes which have been removed from commercial use and which are of ecological, genetic, scientific, ecological educational or recreational significance as typical or rare landscapes, habitats for communities of wild plants and animals, and sites for recreation, tourism, excursions and public education.

2. National parks may be established by decrees of the Government of the Russian Federation at the recommendation of duly authorized Russian Federation state organs in the area of environmental protection or by the councils of ministers of the Russian Federation's constituent republics for the purpose of preserving the environment, including the traditional homes of the small peoples of the North, as well as conducting public environmental education and organizing public recreation and tourist development.

3. Within the territory of national parks it is forbidden to engage in commercial or other activities which run counter to the goals and purposes for which the parks were founded or which damage the environment.

4. National parks are environmental protection institutions, the territory of which is intended for use for environmental protection, recreational, educational, scientific and cultural purposes.

5. Special preserve, reserve and recreational zones may be established within the territory of national parks in order to protect and ensure rational use of natural resources. Special protective zones with a restricted natural use regime may be established around national parks.

6. Compliance with the national park regime will be ensured by the national park service.

#### **Article 64: Natural Landmarks**

1. Natural landmarks are defined as natural sites and natural complexes which are of relic, scientific, historical or ecological educational significance and which require special state protection.

2. Natural sites and complexes may be declared natural landmarks by decree of the Government of the Russian Federation, by decree of the Russian Federation's constituent republics or by decision of the autonomous oblast and autonomous okrugs, krays and oblasts at the recommendation of duly authorized state organs in the area of environmental protection.

3. Natural sites and complexes which have been declared natural landmarks are to be completely removed from commercial use. Any activities which damage the natural landmark or its surrounding environment or degrade its condition and state of preservation are forbidden.

4. Enterprises, institutions and organizations within the territory of which are located natural sites and complexes which have been declared natural landmarks bear full responsibility for the condition and preservation thereof.

#### **Article 65: Protection of Rare and Threatened Plant and Animal Species**

1. The Russian Federation Red Book and the red books of the Russian Federation's constituent republics were established in order to protect rare and threatened plant and animal species.

2. Plants and animals listed among the species entered in the red books are subject to withdrawal from commercial use in all places. Activities resulting in reduction in the number of those plants and animals or degradation of their habitats are forbidden.

3. Enterprises, institutions, organizations and other land users within the territory of which are located plants and animals listed among the species in the red books are obligated to take measures to protect and renew those types of plants and animals.

4. The procedures for protection of rare and threatened plants and animals and registry in the Russian Federation Red Book and the red books of the Russian Federation's constituent republics are to be established by the laws of the Russian Federation and its constituent republics.

#### **Article 66: Environmental Protection in Health Resort and Treatment Facility Areas**

1. Health resort and treatment facility areas are recognized as specially protected territories, along with bodies of water possessing natural therapeutic properties, mineral springs and climatic and other conditions favorable to the treatment and prevention of illness.

2. Sanitary protection districts may be established for the purpose of preserving the natural properties and therapeutic means of health resort and therapeutic zones, protecting them from degradation, pollution or premature depletion; within the bounds of those districts it is forbidden to perform work which pollutes the soil, springs or air or which harms forests and has a negative effect on the therapeutic properties and sanitary state of specially protected areas.

3. The procedure for declaring an area a natural zone or therapeutic zone and the regulations governing protection thereof are to be defined by a decree issued by the Government of the Russian Federation.

The procedure for use of land in the aforementioned zones is to be established by the laws of the Russian Federation and its constituent republics.

#### **Article 67: Protection of Greenbelts**

1. Special suburban greenbelts may be created around cities and industrial towns; these may include both protective forest park belts and areas which perform environmentally protective (environment-forming or ecological), sanitary and hygienic or recreational functions.

2. Within greenbelts it is forbidden to engage in commercial activity which has a negative effect on the performance of their ecological, sanitary and hygienic or recreational functions.

3. The borders of greenbelts are to be determined by the capital of Russian Federation constituent republics and kray and oblast centers by the councils of ministers of the corresponding republics and by kray or oblast soviets of people's deputies.

### **Section X: Environmental Monitoring**

#### **Article 68: Purposes of Environmental Monitoring**

1. Environmental monitoring has as its purposes: observation of the state of the environment and changes therein under the influence of commercial or other activities; oversight of implementation of plans and measures pertaining to environmental protection, rational use of natural resources, restoration of the environment and compliance with the requirements of environmental protection legislation and environmental quality standards.

2. The environmental monitoring system is comprised of the state service for monitoring the state of the environment and other state, commercial and public monitoring systems.

#### **Article 69: The State Service for Monitoring the State of the Environment**

1. The state service for monitoring the state of the environment is to be established for the purpose of observing the physical, chemical and biological processes taking place in the environment, the level of environmental pollution in the air, soils and bodies of water, the effects of pollution on plants and animals, and providing interested organizations and the public with ongoing and emergency information regarding changes in the environment and warnings and projections regarding the state of the environment.

2. The state service for monitoring the state of the environment is to be carried out by duly authorized Russian Federation state organs in the area of environmental protection, with participation by ministries and agencies via an observation system in cities and industrial centers, at water facilities, in individual regions and in outer space.

3. The procedure for the establishment and functioning of the state system for monitoring the state of the environment is to be regulated by a decree approved by the Government of the Russian Federation.

#### **Article 70: State Environmental Monitoring**

1. State environmental monitoring in the Russian Federation is to be carried out by the Russian Federation Supreme Soviet, the supreme soviets of the Russian Federation's constituent republics, the Government of the Russian Federation, the councils of ministers of the Russian Federation's constituent republics, the soviets of people's deputies of the autonomous oblast, autonomous okrugs, krays and oblasts, and duly authorized state organs of the Russian Federation and its constituent republics in the area of environmental protection and sanitary and epidemiological oversight.

2. Officials in state environmental monitoring organs have a right, in accordance with their authority and according to established procedure, to:

- visit enterprises, institutions and organizations regardless of their form of ownership or subordination, including military units, special facilities and services under the Ministry of Defense, internal affairs organs and state security, and inspect documents, analyses and other materials required for the performance of their official duties;

- inspect the operations of anti-pollution equipment and other neutralizing devices, means for monitoring thereof, compliance with environmental quality standards and environmental protection legislation, and implementation of environmental protection plans and measures;

- issue permission to emit, discharge or store harmful substances;

- establish standards for the emission or discharge of harmful substances by point sources of environmental pollution in consultation with organs of sanitary and epidemiological oversight;

- appoint state environmental assessment groups and monitor compliance with their findings;

- require elimination of shortcomings uncovered and within the bounds of the authority granted to them give instructions or provide findings on the siting, planning, construction, rebuilding, startup or use of facilities;

- impose administrative penalties on guilty parties according to established procedure, submit materials regarding disciplinary, administrative or criminal action, and file suit in court or before an arbitration tribunal regarding compensation for damages caused to the environment or human health by violations of environmental legislation;

—make decisions regarding restriction, suspension or termination of the operations of enterprises, installations and other facilities and any activities which damage the environment and present a potential threat to human health.

These decisions are binding on all ministries and agencies, enterprises, institutions, organizations, officials and individual citizens. On the basis of such decisions the corresponding banking institutions will cease financing the banned activities until such time as the ban is repealed by a state environmental monitoring organ.

3. Decisions by state environmental monitoring organs and officials may be appealed in court or before an arbitration tribunal.

#### **Article 71: Production-Related Environmental Monitoring**

1. Production-related environmental monitoring is to be performed by the environmental services of enterprises, institutions and organizations and will have the goal of verifying compliance with plans and measures for environmental protection, restoration of the environment, rational use of natural resources and renewal of natural resources, compliance with environmental quality standards and compliance with the requirements of environmental protection legislation.

2. The procedure for organizing production-related environmental monitoring is regulated by statutes approved by enterprises, institutions and organizations on the basis of the present law.

#### **Article 72: Public Environmental Monitoring**

1. Public environmental monitoring is performed by Russian Federation trade unions and other public associations, labor collectives and citizens, and has as its goal verification of compliance with the present law by ministries and agencies, enterprises, institutions and organizations (regardless of their form of ownership or subordination), officials and private citizens.

2. The procedure for conducting public environmental monitoring is regulated by the present law and legislation on Russian Federation trade unions, labor collectives and public associations.

### **Section XI: Environmental Training, Education and Scientific Research**

#### **Article 73: The Universal, Comprehensive and Continuing Nature of Environmental Training and Education**

In order to raise society's level of environmental awareness and improve the professional training of specialists a system of universal, comprehensive and continuing environmental training and education is to be established; this system will encompass the entire process of preschool and school-age training and education, the professional training of specialists at secondary and higher educational

institutions, and advanced training for those specialists, and will make use of the mass media.

#### **Article 74: Required Nature of Environmental Instruction at Educational Institutions**

1. Mastery of the minimum of environmental knowledge necessary for the formation of citizens' environmental awareness will be ensured at all preschool, secondary and higher educational institutions regardless of their overall orientation by the mandatory teaching of environmental fundamentals.

2. In accordance with their orientation specialized secondary and higher educational institutions may make provision to teach special courses on environmental protection and rational use of natural resources.

#### **Article 75: Vocational Environmental Training for Administrators and Specialists**

1. The heads of ministries and agencies, enterprises, institutions and organizations, other officials and specialists and private citizens connected with activities which have an adverse effect on the environment and human health within the territory of the Russian Federation are obligated to have essential environmental training, which will be taken into consideration when they are hired, certified or recertified.

2. Persons who do not have the necessary training are not permitted to perform jobs which require appropriate environmental knowledge.

#### **Article 76: Dissemination of Environmental Knowledge**

1. In order to teach a thoughtful attitude toward nature and rational use of its riches environmental knowledge and information on environmental legislation should be disseminated.

2. Dissemination of information about the environment and environmental legislation is to be carried out by organs and trade unions of the Russian Federation and by public associations and the mass media.

#### **Article 77: Environmental Research**

1. The Russian Academy of Sciences, sector-based academies of sciences, state organs for science and technology, environmental protection and education, ministries and agencies, scientific institutions and higher educational institutions develop and approved comprehensive programs and plans for scientific research in the area of environmental protection and restoration and rational use and renewal of natural resources and create the necessary conditions for effective environmental research and applications of the findings of that research.

2. Scientists and specialists at scientific institutions take part in the development and realization of comprehensive and targeted environmental programs (at the international, republic and regional levels) and planning work, and serve as members of scientific-technical and expert councils.

rendering assistance with the performance of practical tasks in connection with rational natural resource use and environmental protection, participate in the molding of society's environmental awareness and bear personal responsibility for the scientific results of their projects.

#### **Section XII: Resolution of Disputes in the Area of Environmental Protection**

##### **Article 78: Resolution of Disputes Between Enterprises, Institutions, Organizations and Citizens in the Area of Environmental Protection**

1. Disputes between enterprises, institutions and organizations in the area of environmental protection are to be resolved by soviets of people's deputies according to a procedure established by Russian Federation legislation.
2. Disputes over environmental protection involving citizens are subject to court hearings.
3. Property disputes stemming from compensation for damages caused to the environment or human health are to be resolved by a court or arbitration tribunal in accordance with the jurisdiction thereof.

##### **Article 79: Resolution of Disputes in the Area of Environmental Protection Between Enterprises, Institutions and Organizations Located Within the Territory of the Constituent Republics of the Russian Federation, Krays, Oblasts, Autonomous Oblast and Autonomous Okrugs**

1. Disputes in the area of environmental protection between enterprises, institutions and organizations located within the territory of the Russian Federation's constituent republics, krays, oblasts, autonomous oblast and autonomous okrugs are to be considered by commissions created on a parity basis from among representatives of the Russian Federation constituent republics involved, the autonomous oblast, autonomous okrugs, krays and oblasts. If the commission cannot agree upon a decision, then the disputes are to be resolved by a commission created by the Russian Federation Supreme Soviet, the decision of which is binding.

2. Property disputes in the area of environmental protection between enterprises, institutions and organizations located within the territory of various constituent republics of the Russian Federation, krays and oblasts, the autonomous oblast and autonomous okrugs are to be considered by the Russian Federation Supreme Arbitration Tribunal.

##### **Article 80: Resolution of Disputes in the Area of Environmental Protection Between Enterprises, Institutions and Organizations Located Within the Territory of the Russian Federation and Other Sovereign States**

Disputes in the area of environmental protection between enterprises, institutions and organizations located within the territory of the Russian Federation and other sovereign states are to be resolved according to a procedure established by agreements between the sovereign states.

#### **Section XIII: Liability for Violations of Environmental Legislation**

##### **Article 81: Types of Liability for Violations of Environmental Legislation**

Violators of environmental legislation, i.e. persons responsible for illegal actions which violate environmental protection legislation and cause harm to the environment and human health, officials and citizens bear disciplinary, administrative or criminal, civil legal or material liability, and enterprises, institutions and organizations bear administrative and civil legal liability in accordance with the present law and other legislative acts of the Russian Federation and its constituent republics.

##### **Article 82: Disciplinary Liability for Environmental Misdemeanors**

1. In accordance with statutes, charters and regulations governing internal procedures and other standardizing acts officials and other guilty parties and employees of enterprises, institutions and organizations bear disciplinary liability for failure to carry out plans and measures pertaining to environmental protection and rational use of natural resources, for violation of environmental quality standards and the requirements of environmental protection legislation, depending upon their job description or official position.

2. The heads of enterprises, institutions, organizations and other responsible officials may be fully or completely denied bonuses and other means of incentives for failure to carry out plans and measures in connection with environmental protection or violation of environmental quality standards and environmental protection legislation.

##### **Article 83: Material Liability of Officials and Other Employees Guilty of Causing Damage as a Result of Violations of Environmental Legislation**

Officials and other employees by whose fault an enterprise, institution or organization is forced to make compensation payments for damages caused by a violation of environmental legislation bear material liability toward enterprises, institutions and organizations in accordance with labor legislation.

##### **Article 84: Administrative Liability for Violations of Environmental Legislation**

1. Officials and private citizens, enterprises, institutions and organizations which are responsible for the following are guilty of violating environmental legislation:

- failure to comply with norms, standards and other environmental quality requirements;
- failure to perform obligations to conduct state environmental assessments or to comply with requirements contained in the findings of an environmental assessment, or willful submission of incorrect or unfounded assessment findings;

- violation of environmental requirements during the design, technical and economic justification, planning, siting, construction, rebuilding, startup or operation of enterprises, installations, production lines and other facilities;
- environmental pollution and resultant damage to human health, plant and animal life or the property of citizens and corporate bodies;
- degradation of, damages to or destruction of natural sites, including natural landmarks, or depletion and destruction of nature preserve complexes and natural ecological systems;
- violation of established procedure or regulations governing the extraction, collection, procurement, sale, purchase, acquisition, exchange, mailing, import or export of objects from the plant or animal world or products thereof, as well as botanical, zoological and mineralogical collections;
- failure to comply with mandatory measures aimed at restoring disrupted environments and renewing natural resources;
- failure to follow instructions from organs which carry out state environmental monitoring;
- violations of environmental requirements with regard to the neutralization, processing, utilization, storage or burial of production-related and household wastes;
- failure to comply with environmental requirements governing the commercial use of radioactive materials, chemical substances and other harmful substances or burial thereof;
- levels in excess of established standards for maximum permissible levels of radioactive effect;
- levels in excess of established standards for maximum permissible levels of biological effect on the environment, or violation of the procedure for the storage and use of microorganisms and biological substances;
- production and use of banned chemical substances and production of waste products which have a harmful effect on the Earth's ozone layer;
- illegal expenditure of monies from republic and local environmental funds for purposes not connected with environmental protection efforts;
- provision of untimely or distorted information, or refusal to provide timely, full and reliable information regarding the state of the environment and the radiation situation.

The following are subject to fines levied administratively:

- citizens—from one to 10 times the minimum monthly wage in the Russian Federation;

—officials—from three to 20 times the minimum monthly wage in the Russian Federation;

—enterprises, institutions and organizations—from R50,000 [rubles] to R500,000.

2. The specific amount of the fine imposed is to be determined by the organ which imposes the fine, depending on the nature and type of violation committed, the extent of the violator's guilt, and the amount of damage caused.

3. Fines for the aforementioned legal violations are to be imposed, within the bounds of their jurisdiction, by duly authorized Russian Federation state organs in the area of environmental protection or Russian Federation sanitary and epidemiological oversight, as well as technical labor inspection groups from trade unions. A resolution imposing a fine may be appealed in court or before an arbitration tribunal. The levying of a fine does not exempt the guilty parties from the obligation to compensate for any damages caused.

4. Collected fines are to be paid into special accounts belonging to state environmental funds.

#### **Article 85: Criminal Liability for Environmental Crimes**

Officials and citizens guilty of committing environmental crimes, i.e. socially dangerous actions which infringe upon the system of environmental law established in the Russian Federation and society's environmental safety and causing harm to the environment and human health, bear criminal liability as set forth in the RSFSR Criminal Code.

#### **Section XIV: Compensation for Damages Caused by Violations of Environmental Legislation**

##### **Article 86: Obligation of Full Compensation for Damages Caused by Violations of Environmental Legislation**

Enterprises, institutions, organizations and individual citizens that cause damage to the environment or to citizens' health and property or to the economy by polluting the environment, degrading, destroying, damaging or using natural resources irrationally, destroying natural ecological systems and committing other violations of environmental legislation are obligated to make full compensation in accordance with current legislation.

##### **Article 87: Procedure for Compensation for Damages Caused by Violations of Environmental Legislation**

1. Compensation for damages caused to the environment as a result of violations of environmental legislation is to be made either voluntarily or on the basis of a court order or by order of an arbitration tribunal in accordance with the established rates and methods of calculating the amount of damages, or in the absence of such rates and methods in accordance with the actual expense of restoring the disrupted state of the environment, also taking into account losses, including loss of use.

2. The amount of damages awarded by order of a court or an arbitration tribunal is to be compensated for to the victim (a citizen, enterprise, institution or organization) so that measures may be taken to restore losses to the environment or so that payments may be made into a state environmental fund, if the natural site which was damaged is a public place.

3. If several persons are responsible for causing the damages, compensation may be awarded based on the proportion of guilt borne by each for the damages, including guilt on the part of surveying, planning and construction organizations.

4. With the consent of the parties a court or arbitration tribunal may award compensation in kind, requiring the guilty party to restore the environment by his own effort and at his own expense.

#### **Article 88: Compensation for Damages Caused by a Source of Heightened Environmental Risk**

Enterprises, institutions and organizations whose activities involve heightened environmental risk are obligated to make compensation for any damages caused by them to the environment or to human health in accordance with Article 454 of the RSFSR Civil Code.

#### **Article 89: Compensation for Damages Caused to Citizens' Health by Adverse Effects on the Environment**

1. Damages caused to citizens' health as a result of adverse effects on the environment caused by the activities of enterprises, institutions, organizations or individual citizens are subject to compensation in full.

2. The following must be taken into account when determining the extent of damage to citizens' health: the decree of work ability lost by the injured party; necessary expenditures for treatment and restoration of health; expenditures for patient care and other expenses, including lost professional opportunities and the cost of relocation and adjustments in life style or profession, and losses due to moral trauma, the inability to bear children or the risk of bearing children with congenital pathologies.

3. Compensation for damages to citizens' health is to be made on the basis of a court decision in a suit filed by the injured party or members of his or her family, the procurator, a duly authorized state administration or a public organization (or association) on behalf of the injured party.

4. The sum of money to be paid for damages caused to citizens' health is to be recovered from the person who caused the damages or, if it is impossible to determine who caused the damages, compensation is to be paid out of appropriate state environmental funds.

#### **Article 90: Compensation for Damages Caused to Citizens' Property**

1. Damages caused to citizens' property as a result of adverse effects on the environment due to commercial or other activities are subject to compensation in full.

2. When determining the amount of damages caused to citizens' property as a result of adverse effects on the environment caused by the activities of enterprises, institutions, organizations and private citizens, the direct damage connected with the destruction should be taken into account, along with the reduced value of structures, housing, production-related buildings, equipment and other property and the lost benefit caused by lost harvests, reduced soil fertility and other adverse effects.

#### **Article 91: Lawsuits Demanding Termination of Environmentally Harmful Activities**

1. Enterprises, institutions, organizations and private citizens have a right to file lawsuits in court or with an arbitration tribunal, and citizens have a right to do so in court, demanding termination of environmentally harmful activities which are damaging the health and property of citizens, the economy and the environment.

2. The decision by a court or an arbitration tribunal to halt environmentally harmful activities is also grounds for termination of financing of such activities by the corresponding banking institutions.

#### **Section XV: International Cooperation in the Area of Environmental Protection**

#### **Article 92: Principles of International Cooperation in the Area of environmental protection**

In its policy on environmental protection the Russian Federation assumes the need to ensure universal environmental safety and to develop international environmental protection cooperation for the sake of the present and future generations, and is guided by the following principles:

- every human being has a right to live under the most favorable environmental conditions;
- every state has a right to use the environment and natural resources for the purpose of development and to meet the needs of its citizens;
- the environmental well-being of one state may not be ensured at the expense of other states or without consideration for their interests;
- commercial activities carried out within the territory of a state should not harm the environment either within the boundaries of that state or beyond its jurisdiction;
- any type of commercial or other activities with unpredictable environmental consequences are not permissible;
- monitoring of the state of and changes in the environment and natural resources should be established at the global, regional and national levels on the basis of internationally recognized criteria and parameters;

- free and unhindered international exchange of scientific and technical information on environmental protection issues and advanced resource-conservation technologies should be ensured;
- states should assist each other in environmental emergencies;
- all disputes connected with environmental issues should be resolved solely by peaceful means.

**Article 93: International Treaties in the Area of Environmental Protection**

If international treaties in the area of environmental protection concluded by the Russian Federation establish other regulations than those contained in the legislation of the Russian Federation, then the regulations contained in the international treaties apply.

**Article 94: Obligations of Foreign Corporate Bodies, Foreign Citizens and Stateless Persons to Comply With the Environmental Protection Legislation of the Russian Federation and Its Constituent Republics**

Foreign corporate bodies, foreign citizens and stateless persons within the territory of the Russian Federation are obligated to comply with the requirements of the present law and other legislative acts of the Russian Federation and its constituent republics, and are liable for violations thereof.

[Signed] B. Yeltsin, President of the RSFSR  
Moscow, RSFSR House of Soviets  
19 December 1991  
No 2060-1

**Point 4, Article 20 was published in the RSFSR draft law of 21 February 1992 entitled: "On Amendments to Article 20 of the RSFSR Law 'On Protection of the Environment'."**

**RSFSR Supreme Soviet Resolution**

**On the Procedure for Enactment of the RSFSR Law "On Protection of the Environment"**

The RSFSR Supreme Soviet hereby resolves:

1. to enact the RSFSR law "On Protection of the Environment" immediately upon publication.
2. that the supreme soviets of RSFSR constituent republics shall bring their legislation into accordance with the RSFSR law "On Protection of the Environment."
3. that until legislation of the RSFSR and its constituent republics is brought into accordance with the RSFSR law "On Protection of the Environment" it shall be applied insofar as it is not in violation of that law.
4. to instruct the RSFSR Supreme Soviet Committee on Ecology and Rational Use of Natural Resources and the RSFSR Supreme Soviet Committee on Legislation to use the RSFSR law "On Protection of the Environment" as a basis and to develop additional law pertaining to it,

preparing an RSFSR draft law "On Introduction of Amendments and Additions to the RSFSR Criminal Code and the RSFSR Code of Administrative Legal Violations," and to submit that draft for the consideration of the RSFSR Supreme Soviet by 1 June 1992.

5. to instruct the Government of the Russian Federation:

—by 1 March 1992 to draft and approve a statute on environmental funds;

—by 1 May 1992 to bring decisions by the Government of the Russian Federation into accordance with the RSFSR law "On Protection of the Environment" and ensure that ministries, states committees and agencies of the Russian Federation review and repeal standardizing acts which are in violation of the present law.

6. to repeal the RSFSR law of 27 October 1960 "On Protection of the Environment in the RSFSR" (see: VEDOMOSTI VERKHOVNOGO SOVETA RSFSR, 1960, No 40, p 586).

7. to instruct the RSFSR Supreme Soviet Committee on Ecology and Rational Use of Natural Resources and the RSFSR Supreme Soviet Legislative Committee to oversee implementation of the measures set forth in the present resolution, and if necessary to submit appropriate proposals to the RSFSR Supreme Soviet.

[Signed] R. I. Khasbulatov, RSFSR Supreme Soviet chairman  
Moscow, RSFSR House of Soviet  
19 December 1991  
No 2061-1

**IAEA Experts To Examine Kursk Nuclear Plant**

LD2802090692 Moscow RIA in English 1402 GMT  
27 Feb 92

[Text] Kursk, RIA—Experts of the International Atomic Energy Agency (IAEA) will come this summer to the Kursk nuclear plant to verify the observance of safety rules. This was decided when the plant's director Vladimir Gusarov went to the IAEA headquarters in Vienna under the pressure of the Kursk regional council of deputies. The council acted on instructions from its electorate, especially those living within the 30-kilometre zone of the nuclear plant. After the Chernobyl accident, people don't trust local experts and prefer to heed the opinion of foreign specialists.

**RSFSR Licensing in Nuclear Production, Materials Announced**

LD0403231992 Moscow POSTFACTUM in English  
2045 GMT 4 Mar 92

[From the "Domestic Market" section]

[Text] Moscow—Legal and physical persons starting or engaged in production or utilization of nuclear materials, atomic energy and radioactive substances are to

obtain an appropriate license from the Russian Federation State Atomic Energy Authority. This has been announced at a press conference held on March 4th by the top-ranking officials of the State Committee for Supervision over Nuclear and Radiation Safety under the Russian Federation president. According to them, in excess of 13,000 such persons have been listed. The state committee spokesmen claim that there were no accidents registered at the atomic power stations situated in Russia's territory in 1991 but 1 local radiation accident occurred. They meant Bilibin atomic power station where on July 10th, 1991 as a result of a violation of the procedure for shipping radioactive waste, the station's territory was polluted. As the press conference organizers stated, the accident presented no danger to the station's personnel or the local residents. In 1991 156 cases of unplanned stoppages of power station units took place with 4 of those units being stopped to be put out of commission. In order to have better radiation safety, several units operated at just 70 percent capacity, the atomic authority spokesmen reported.

### **Chernobyl Expert Sees 'Numerous Nuclear Corpses' in CIS**

AU1303113892 Vienna KURIER in German 13 Mar 92 p 4

[Kurt M. Mayer report on "exclusive" interview with Russian nuclear expert Yuliy Andreyev; place and date not given: "Numerous Nuclear Corpses in the Community of Independent States"]

[Text] According to nuclear expert Yuliy Andreyev, who was in charge of cleaning up the Chernobyl disaster, there are still numerous nuclear corpses in the successor states to the former Soviet Union. He stated this in an exclusive interview with KURIER.

He reported about a metallurgical factory in Moscow, where the workers and the environment are exposed to radioactive caesium and about a radioactive source that was erroneously built into a block of apartments in Ukraine. Finally, he made the following dramatic statement: "We have 20 Kozloduys (nuclear power plant in Bulgaria in extremely desperate condition). Andreyev, who is familiar with technology, knows about numerous terrible cases.

The weaknesses of Soviet Chernobyl- and Kozloduy-type reactors have been known to Western experts for a long time. Andreyev mentioned a case that is even worse: In Balakovo on the Russian Volga, there is a nuclear power plant of the type that is being used as a basis for the Temelin nuclear power plant in south Bohemia that is currently under construction. "Mistakes by personnel are mainly responsible for the fact that 50 percent of all incidents at nuclear power plants throughout Russia occur in Balakovo."

Andreyev, who had been as close to the open reactor at Chernobyl as 40 meters distance ("I do not say anything about the radiation to which I was exposed") is currently touring Austria, giving lectures about protection against

catastrophes. He does not think much of the planned construction of a second concrete casing around the destroyed Chernobyl block, which is also advocated by Western companies. "This is only a psychological measure. The environment is contaminated to such an extent that one can say that it is uninhabitable for all time."

Yuliy Andreyev, who was silent for a long time, stressed that he can reassure the West in connection with former Soviet nuclear scientists: "No individual person knows all the details of the atomic bomb. At least 20 people used to cooperate, and Libya cannot buy all of them."

### **Scientists Propose Recycling of Chemical Weapons**

92/P00944 Moscow ROSSIYSKAYA GAZETA in Russian 27 Feb 92 First Edition p 3

[Article by Oleg Zlobin: "We Want To Hear That The Contamination Is Being Canceled—Volsk Scientists Propose Their Own Option for Destroying Chemical Weapons"]

[Text] Saratov Oblast—I will not say that the appearance of gas masks in drygoods stores in Saratov caused a hullabaloo, but the clerks certainly are not complaining about a lack of demand. City-dwellers still have fresh in memory the unfortunate accident on the water canal near the Volga when a wornout container of chlorine burst open. A few kilograms of the toxic substance caused quite an uproar. The firemen called to tame the treacherous genie were able to surround the station with a water curtain. If they had not, as the city civil defense headquarters acknowledged later, a cloud of yellow-green chlorine, which causes emphysema instantly, could have reached the community of Novosokolovogorskiy and the neighboring dacha developments.

Fortunately they were able to avert the tragedy. And you might, as they say, sleep peacefully. However, here is what you would not dream. If you "pick up" the summaries of the "emergency" team for that day, they look like reports from the field of a desperate battle. Eleven "urgent cases" almost did not get carried out of the contamination zone, and I should note that these were firemen wearing special protective suits and using breathing apparatuses. Just think: 30 people in clothing sealed from head to toe (in other words almost the entire duty team that came) received some degree of contamination or other, including very grave levels. What does this reflect? The reliability of domestically made equipment? Or is it poor personnel training? There are other questions too. Why, in a city of 1 million people where there should be an inviolate store of medicines, was it hard to find alkaline infusion agents and hormones? In all Saratov just four jars of Leucocroderex were found, and long hours were spent searching for Trisomin.

In essence a major industrial center of the Volga region with huge defense potential, a petrochemical complex, and even its own military school of chemical defense was caught off guard by a small accident at a humble water

pumping-filtering station. It is not at all irrelevant to recall this because Saratov today faces a much more difficult challenge than fighting a leak of a few liters of chlorine. For 2-3 hours drive from the oblast center are thousands of tons of the cruelest weapons on Earth—chemical weapons. Since 1943 the country's largest storage depot for combat toxic chemicals, indeed perhaps the largest in Europe, has been located here. And it is just a couple of kilometers from the densely populated settlement of Gornyy, the center of Krasnopartizanskiy Rayon. Now the question of destroying these lethal stocks is on the agenda.

We can see why having such a thing as a gas mask among your household goods is no luxury; it is, unfortunately, a cruel necessity for these citizens of the Volga region.

"The management of the chemical depot is no longer able to guarantee the full safety of the installation," I was told with alarm by M. G. Minikh, deputy chairman of the oblast deputy commission on questions of ecology and rational use of resources, after a trip to Krasnopartizanskiy Rayon. "You know, the tanks at the storage facility have become unusable. The oxidation process is going terrifyingly fast. The walls are getting thinner..."

The lethal contents of the tanks could spill onto the ground at any moment. Raw young soldiers in chemical defense suits are trying to move the toxic substances to new containers. The squalor and lack of technical equipment is striking. Hangars, rows of barrels, tank cars on rails—that is the menacing chemical depot. Mountains of poison freight have grown there for decades. If something bad were to happen there would be no one to assign formal responsibility to: all the maximum storage times for the toxic substances have been exceeded.

It is clear that there can be no procrastination here. But haste is improper too: the cost of a mistake would be enormous. That is why the oblast authorities have to examine this question very carefully.

It is common knowledge that the former Soviet Union assumed an obligation to begin liquidating its deadly chemical stockpiles no later than 1992. But there is no considered program for this at all—nothing but declarations. Incidentally, S. Petrov, head of the chemical troops, stated this in the press recently. While the Americans, taking parallel steps toward disarmament, intend to put an end to their chemical weapons on an uninhabited Pacific atoll, our military department has "blessed" Mother Volga for the umpteenth time: a plant has been built in the city of Chapayevsk, which is in Samara Oblast, to destroy phosphorus-containing toxic substances. It was swept by a wave of public fury before it had operated a single day.

The inhabitants of Saratov Oblast have reason to be alarmed as well. It was not that long ago that the chemical troops sent a letter to N. Makarevich, chairman of the Saratov Oblast Soviet, substantiating the need to build a complex of installations "in the region of the settlement of Gornyy, to disarm stockpiles of toxic

substances." Having been beaten in Chapayevsk, it looks like the military specialists are trying one way after another to bring their obviously obsolete technology into the Volga steppes.

"This cannot be allowed," M. Minikh says categorically.

Local scientists and economists stand with the Saratov ecology activist. In the opinion of respected experts, the plan proposed by the military is unacceptable from the standpoint of environmental protection, based on economic advantage, or according to ordinary common sense. The time has passed when enormous amounts of money can be spent without a thought. And the military specialists are proposing just that, an expensive way to destroy the combat chemicals. They intend to use hundreds of millions of rubles and thousands of tons of raw materials and the result will be more heaps of toxic waste which, moreover, will have to be buried in the oblast (it is clear that no republic would accept this kind of "gift"). According to the same calculations they will require 12,223 million cubic meters a year of gas alone. It is not hard to surmise that it will go for operating roasting ovens.

And so the question raises itself: is there really no other way to get rid of chemical weapons except the notorious incineration? It turns out that there is another way! After reviewing dozens of proposals, the State Ecological Expert Examining Commission selected a procedure developed by scientists at the Volsk branch of GSNI-IOKhT [not further identified] as the one that best ensures the ecological safety of production.

The essential point of the procedure is to put every ton of toxic substances into reprocessing and then recycle and make rational use of every single component obtained. For example, from a ton of Lewisite, which has a skin-blistering effect, it is possible to obtain 350 kilograms of highly pure arsenic. Specialists know how valuable this material is. It is used to produce high-precision instruments. In the world market a kilogram of metallic arsenic is worth 5,000 dollars. Not having its own deposits, Russia is forced to spend hard currency for this raw material. According to estimates by Western specialists, our country has stockpiled tens of thousands of tons of Lewisite. It is not hard to calculate that implementation of the program proposed by the Volsk scientists promises profits running into the billions. The fractions obtained in the production of arsenic can also be used successfully, for example in rubber articles, to increase the guaranteed life of tires from 50,000 to 120,000 kilometers. There are attractive prospects for domestic solar energy, satellite television, and high-frequency electronic equipment as well; after all, everything necessary for very rapid development of these sectors will be created on the basis of raw material obtained in the reprocessing of combat chemicals. It is its relative simplicity, economy, and waste-free quality that make this unusual plan attractive. And it is important that the "Volsk option," unlike all the others, offers a guarantee of maximum safety for the environment.

"These are not just calculations on paper," explained candidate of technical sciences Vladislav Voynitskiy, one of the authors. "Our no-waste technology was tested successfully at an experimental industrial site some time ago, in the autumn of 1989."

One thing is hard to understand: why was this technology, which has been tested and approved by prominent scientists and working specialists, not requested? You would expect, by the logic of things, that this is exactly what all interested departments would be fighting to get. And that means the military first of all. It is impossible to imagine a better conversion option in this case.

It is obvious that out of inertia they still think that such problems are "not a matter for local thinking," that they all must be decided in the capital. But that is wrong! The citizens of the Volga region find themselves hostages to menacing weapons and it is in their interest to get rid of them as fast as possible, to take care of this dangerous "inheritance" openly, intelligently, and wisely. I stress the "wisely." So that the colossal economic impact which can and should be received from the use of resource-conserving technologies benefits primarily the life of the outlying areas of the Volga, which languish in chemical imprisonment. And benefits the Volga region as a whole. May our home gas masks remain as they are, unused.

### **Arzamas-16 Scientists Plan Nuclear Destruction of Chemical Weapons**

*MK0503122692 Moscow NEZAVISIMAYA GAZETA in Russian 5 Mar 92 p 6*

[Yuriy Meshkov report: "Will Nuclear Explosions Be Heard? There Are Plans To Use Them To Destroy Chemical Weapons"]

[Text] President Yeltsin's trip to the closed city of Arzamas-16 attracted particular attention from foreign observers. The concerns of recent months are associated precisely with this city and the Experimental Physics Scientific Research Institute there. "How far may the Russians go in their desire to earn hard currency?" is a question that is being asked increasingly often in connection with the nuclear conversion planned in our country.

Shortly before Yeltsin's visit to Arzamas-16 Moscow was visited by representatives of the legendary nuclear center. At a seminar organized by the Center for Independent Environmental Programs at the Russian Ministry of Environment and Natural Resources, they disclosed plans for eliminating chemical weapons by means of... nuclear explosions.

In a lengthy report Aleksandr Chernyshov, deputy director of the Experimental Physics Scientific Research Institute, tried to convince the audience of specialists, and also representatives of the antinuclear movement and environmentalists that the proposed technique for destroying highly poisonous toxins is absolutely harmless. However, existing experience of underground nuclear explosions makes it impossible to rule out the likelihood of radioactive and

chemical contamination of the environment. A representative of Arzamas-16 who had come to Moscow, speaking outside the program of the meeting, so to speak, declared that "nuclear technologies are particularly dangerous in a country that does not think it necessary to construct public toilets and keep them clean. The country could not stand another Chernobyl..."

However, the authors of the plan are prepared to carry out an experiment as early as this spring by blowing up 20 tonnes of toxins packaged in containers. Only the nuclear moratorium for 1992 imposed by Yeltsin is keeping the military-industrial complex specialists from their planned explosions at the Novaya Zemlya test site.

Aleksandr Chernyshov reported that 40,000 tons of Russian [otechestvenny] chemical munitions have to be destroyed. This can be done with just three nuclear blasts. However, according to Chernyshov, in fact about 10 explosions are planned.

Another fact that is causing some concern is the creation of the "Chetek" international closed joint-stock company with capital of 302 million rubles, whose shareholders include the Experimental Physics Scientific Research Institute. "Chetek" also has a subsidiary in Hamburg. The "Chetek" joint-stock company has been given exclusive rights to commercial use of the technology for destroying and burying chemical and nuclear waste by the method of thermal breakdown and vaporization in an underground nuclear explosion.

There is no certainty that, once the noble mission of ridding us of our own chemical weapons has been completed, international nuclear and chemical waste collected by the "Chetek" joint-stock company from all over the world will not pour into the Novaya Zemlya test site. For instance, in the West it costs \$100 to destroy 1 kilogram of highly toxic waste. As for our businessmen, they simply cannot get used to gambling on lowering prices...

In offering this way of getting rid of weapons of mass destruction, the military-industrial complex has its own interests: the same old explosions, the same old large numbers of personnel to prepare and stage them, the same old secrecy and therefore absence of controls...

In the very near future the Socio-Environmental Union Center for Independent Environmental Programs intends to hold another meeting for interested specialists and representatives of the green movement in order to discuss alternative plans.

### **Moscow Firm Seeks To Sell Atomic Bombs for Toxic Waste Disposal Use**

*AU0903163592 Hamburg BILD AM SONNTAG in German 8 Mar 92 p 26*

[Eva Goris report: "Sheer Madness! A German Sells Atomic Bombs"]

[Text] His shirt is snow-white, and his tie is correctly knotted. This man radiates seriousness—from his accurately parted hair to the polished shoes. One would buy a second-hand car sight unseen from a man like Gerhard Voigt (62).

However, Mr. Voigt does not sell cars. Mr. Voigt sells bombs, deadly atomic bombs.

Respectable Mr. Voigt naturally puts it a little differently: "We dispose highly toxic waste through underground nuclear explosions. We destroy chemical weapons and nuclear residues from nuclear power plants—fast, without any problems, and in an environmentally-friendly way."

Mr. Voigt offers his services at a good price: "\$300 for every kilogram of toxic waste."

"Voigt/Chetek" reads the computer written plate of the three-family house in Sachsenwaldstrasse 7, 2055 Aumuehle, near Hamburg. This is a beautiful part of Germany. The Sachsenwald Forest, with its many hectares of fir trees, is close by.

However, Gerhard Voigt does not have much time for walks in the Sachsenwald Forest. He spends a lot of time in Moscow, using either Lufthansa or Aeroflot to fly from Hamburg-Fuhlsbuettel to Sheremetyevo. From there, he takes a taxi to the Chetek Corporation, Varvaka Prospekt 15 (directly opposite the Kremlin).

His bosses are there: Nuclear scientists and former military officials of the Red Army. They need Voigt. Voigt, "who has had close relations with the Soviet Union for 26 years," has the task of boosting trade with the atomic bomb in Germany.

Mr. Voigt's explanation of the deal sounds harmless: "Atomic bombs are detonated at 400 meters below the Earth's surface—naturally only in geologically suitable locations. Because of the heat of the nuclear explosion, the toxic substances 'vitrify' and melt together with the rocks."

His business partners in Moscow are quite experienced in this field: They have carried out well over 100 such explosions. Before 1990, they received their orders and the bombs from the state. Thus, the former USSR built natural gas depots and removed entire mountains through nuclear explosions.

Example 1: Semipalatinsk. A nuclear explosion enlarged the river basin—two rivers merged into a big one. The explosive force corresponded to that of Hiroshima.

Example 2: Orenburg (Urals). A total of 18 nuclear warheads were detonated to create space for an underground natural gas depot.

Example 3: Astrakhan/Caspian Sea. A nuclear explosion created space for a gas depot.

An inquiry with the environmental expert of the Greenpeace organization, Thomas Schultz-Jagow, revealed that "the gas that comes out of the lines is radioactively contaminated."

What is the situation like today? Where do the Chetek managers obtain their bombs?

"We have the knowledge and the technical preconditions," was all Voigt stated.

Investigations in the United States with the nuclear expert William C. Potter (director of the Russia Institute in Monterey/California) disclosed the following: "Chetek is an offshoot of the former Ministry for Nuclear Industry. We carried out similar experiments 20 years ago, but we stopped them—they were too dangerous..."

The responsible officials of this ministry have thousands of dead children on their conscience: After the nuclear tests in Semipalatinsk, leukemia-related deaths soared in the area.

Schultz-Jagow from Greenpeace stated: "Numerous little Chernobyls were created there. In the areas affected, many people are suffering from cancer and anemia. They have become victims of nuclear madness."

Mr. Voigt, do you want even more victims and even more madness?

Mr. Voigt smiled. He does not look like somebody who wants madness. "I have carried out careful investigations in the West. There is great interest in our offer."

Those who order services in the form of atomic bombs from the dealer Voigt can convince themselves of their efficiency. Mr. Voigt owes this to his image as a serious businessman. Chetek plans an "explosion for demonstration purposes" in Novaya Zemlya (Russian Arctics).

A Chetek advertising brochure contains the following passage: "During the experiment, 1,000 tons of highly toxic industrial waste will be destroyed."

What kind of people are ordering the nuclear destruction of toxic waste?

"We are exclusively working in the service of the environment. Everybody who wants to carry out business with us must prove his peaceful intentions."

Mr. Voigt is known in Sachsenwaldstrasse in Aumuehle. People like him. "He is a nice elderly man. I think he is an agent" a neighbor stated.

He is indeed an agent. He is dealing in death.

### Shortage of Funds Blocks Moscow Antipollution Project

PM0903164592 Moscow Teleradiokompaniya  
Ostankino Television First Program Network  
in Russian 0955 GMT 29 Feb 92

[From the "Ecological Chronicle" program: Report by Aleksandr Fedorovich, identified by caption.]

[Text] [Fedorovich] This report comes from the Electrical Engineering Plant imeni Vladimira Iliche, an enterprise of the Ecoprom consortium's ecological structure. We will be talking about the fate of an ingenious project.

The idea of utilizing electron accelerators for ecological purposes has been attracting power industry workers' interest for some time now. It is no secret that thermal power stations and industrial enterprises are among the main polluters of Moscow's atmosphere.

So is it possible to reduce the gas smog in Moscow?

The specialists' answer is "Yes." They have proposed an electron-beam scrubbing method for this purpose. And so this project was born. Incidentally, it is deemed ecologically clean compared with many other technologies. It is intended for Moscow's "Yuzhnaya" thermal power station. It was planned to install a system consisting of two electron accelerators and some other equipment there. This complex could scrub 100,000 cubic meters of gas per hour, transforming it into nitrogen fertilizer for agricultural purposes.

[turning to designer] Aleksandr Mikhailovich, can you tell us about the prospects of the new gas-scrubbing equipment project for thermal power stations?

[A.M. Krayzman, chief designer of accelerator equipment] I have to say that work on similar projects is under way in several countries including Japan, FRG, and the United States at the moment.

With the cooperation of a number of the country's enterprises and organizations we have completed a pilot project this year for an installation at Moscow's "Yuzhnaya" thermal power station. However, implementation of this project, together with a number of other ecological projects including some for the purification of industrial effluent, has been halted at present because of the market. There are no funds.

### Novaya Zemlya Radioactive Waste Storage Planned

PM0903140592 Moscow IZVESTIYA in Russian  
7 Mar 92 Morning Edition p 1

[Report by MIA "Kontakt" agency: "Plan for Nuclear Tomb in Novaya Zemlya"]

[Text] Murmansk—The Murmansk maritime shipping company has defended the technical and economic justification for constructing an experimental industrial installation for the underground isolation of solid radioactive waste on Novaya Zemlya.

The project's clients are the shipping company and the Northern Fleet. Specialists have given a good assessment of the development, carried out by the Moscow "Promtekhnologiya" scientific research institute. To bury the waste it is planned to use tunnels dug in the permafrost for underground nuclear explosions.

### Condition of WW II Chemical Weapons Dumped in Baltic To Be Evaluated

LD0103171392 Moscow TASS in English 1918 GMT  
28 Feb 92

[By ITAR-TASS correspondent Roman Zadunaiskiy]

[Text] Moscow, February 28 (TASS)—Russian and German scientists will soon estimate the circumstances of dumping captured German chemical weapons and their current state, Chairman of the International Committee for Peace, Disarmament and Ecological Security in Sea and Oceans Justice Major-General (retired) Pyotr Barabolya told ITAR-TASS.

After the second world war, almost 400,000 tons of the German Army's ammunition containing war gases (mustard gas, lewisite, phosgene and diphosgene) were dumped in various areas of the Baltic Sea, mainly in shallow water—the Kiel Bay, the Skagerrak Gulf and near the Bornholm Island—under the decision of the allies.

The war gas shells, bombs and reservoirs are going to ruin and becoming depressurized, according to experts' estimations. Approximately between 50,000 and 100,000 tons of war gases may get into the water.

"The allies had an erroneous theory that the chemical ammunition will cover up with a thick layer of silt and be preserved," said Barabolya.

"However, the ammunition was dumped in shallow water, currents and heavy gales mix up everything, and the Baltic Sea is boiling like a pot in bad weather. The situation can become threatening any moment."

Head of the CIS Navy Chemical Service Vice-Admiral Viktor Skantsev told ITAR-TASS one can now speak only theoretically about the state of the dumped chemical weapons and a possibility of sea water contamination.

It is possible chemical air bombs' cases have already gone to ruin, as they were from three to four millimeter thick in contrast to cases of chemical shells with a thickness of up to 20 millimeters.

### Finland Asked To Aid in Clearing Gulf of Finland of Chemical Weapons

LD0903183992 Moscow Radio Moscow World Service  
in English 1900 GMT 7 Mar 92

[Text] The Mayor of St. Petersburg, Anatoliy Sobchak, has asked Finland to provide assistance in clearing the Gulf of

Finland of chemical weapons. At a meeting with the Finnish Minister of the Environment, Mrs. Sirpa Pietikainen, Mr. Sobchak informed her that work was now in full swing to locate the ships with chemical agents on board sunk in the Gulf during World War II. In the near future Finland will get the necessary information about the results of this work and, in the mayor's opinion, it could help to surface chemical weapons and remove them from the Gulf. At their meeting in St. Petersburg Mr. Sobchak and Mrs. Pietikainen also discussed bilateral cooperation and ways of turning the Karelian Isthmus into an environmentally safe international region.

### **Kiev Joint Venture To Produce Pollution Control Equipment**

*LD0503172192 Kiev Radio Kiev in English 0100 GMT  
4 Mar 92*

[Text] In the very near future Ukraine can become one of the world's biggest manufacturers of highly efficient equipment for preventing air pollution by electric power stations operating on liquid fuel and coal. Such a prospective has been opened up for our republic by the joint venture established with the (ADB Fleck) company which is the world's leader in environmental protection.

The headquarters of this joint venture will be located in Kiev. This international syndicate called (Echo Engineering) will focus its main effort on the production of technologies which will make it possible to almost completely utilize the wastes of the mentioned electric power stations. Some equipment is of special importance for Ukraine, operating on the territory of which are more than 100 electric power stations.

### **International Conference on Aral Sea Opens in Alma-Ata**

*LD0703144592 Alma-Ata Kazakh Radio Network  
in Kazakh 0200 GMT 6 Mar 92*

[Text] A working meeting of specialists from many countries of the world engaged in the problem of the drying up of the Aral Sea has started in the capital of Kazakhstan. It is being conducted by the Institute of Geography of the republic's Academy of Sciences. Several ideas for saving this continental sea have been put forward. According to Mukitanov, director of the Institute of Geography, it will only be possible to restore the volume of the sea if we give back to it as much as we took over a period of several decades. It can be assumed the same amount of time will be required even for a partial refilling of the losses of the Aral.

### **Nuclear Testing in Kazakhstan Outside Test Site Detailed**

*924P0082A Moscow OGGNEK in Russian  
No 2, Jan 92 pp 14-15*

[Article by Yuriy Lushin: "A Big Secret 'For Peaceful Purposes'"]

[Text]

**This is by no means the end of the story because the secrets that I touched are too deep. And it started by chance.**

It came to me about three years ago on an expedition with biologists who were counting the numbers of saiga antelopes. The work was tedious: Fly in a tiny AN-2 aircraft for eight hours a day searching from the air and counting the herds of the steppe antelope that by some miracle are still living even in our days (from the results of the count the scientists offer recommendations on the numbers of saiga that can be shot without harming its reproduction). We flew above the steppe in squares, going from Aktyubinsk Oblast first to the edge of Guryev Oblast and then to the edge of Uralsk Oblast (the saiga know no frontiers). On some days the flights were suddenly cancelled even though it was beautiful May weather, and the pilot was fit, and the aircraft was in proper order.

"Circumstances," Eldos Ismagilov, the leader of our expedition would sigh mysteriously. The burden of some secret was weighing down on him, but he was not able to live with it for long. "This test site is shutting off our oxygen," he would say. "They are firing again and we are banned." Even though they stopped their experiments during the time that the saiga were migrating...

A day later the missile people would allow us to fly. Of course, the test site was empty; the saiga had left only a chain of tracks on the damp earth by the water holes. Everything living had hastened to remove itself from this accursed place, and all we saw was a occasional pair or threesome of animals that had been left behind. Were they sick? Wounded? It is hard to say. Eldos pointed out an almost unnoticed place between the sand hills and said that for some reason the film in the cameras was being exposed, and so there was no reason to delay. The local hunters also knew about it, but no one could explain the reason for the strange phenomenon. On another occasion, now back on the ground, they showed me an enormously deep crater of unknown origin. I stood on its lip, and everyone put forward his own hypothesis.

"It was a meteorite strike."

"It is a karst sinkhole" (So why were there no other in the vicinity?).

"Perhaps a nuclear explosion?" I suggested, but no one supported that version. At the time it seemed fantastic. Nevertheless, I did designate the suspicious place with a question mark on a map of Kazakhstan. The mark was made in Baygansiy Rayon in Aktyubinsk Oblast. How could I foretell that this point would become the start of a map of nuclear explosions that were carried out not just at the Semipalatinsk test site? It turned out that they were conducted in various oblasts of Kazakhstan starting from 1966 (and perhaps even earlier?) right up to recent times.

When I was already in possession of documents confirming the reality of dozens of atomic explosions outside the test site I went to former Politburo member D.A.

Kunayev, with a question: Did Dinmukhamed Akhmedovich know anything about this?

"No, it is the first time I have heard of it."

"And this despite the fact that you were on friendly relations with Brezhnev himself?"

"Nevertheless, I know nothing. I knew little about the Semipalatinsk test site. Everything was under the power of the military, and they did not share their secrets with us."

Perhaps, of course, we might be surprised at the extreme lack of curiosity of the erstwhile leader of the republic. Perhaps we may doubt the veracity of his admission. But I believe that he really was ignorant about this.

But let us return to my nuclear investigation. It moved slowly. The second point on the map appeared a year later. It was at Mangyshlak at the time when they started to talk about conversion and the top secret Caspian mining-and-metallurgical combine (PGMK) in the city of Shevchenko opened its doors for the first time to journalists. I visited a quarry where they mined uranium ore. They assured me that it was quite safe to work there. But for some reason all the dump truck drivers traveled in respirators and the roads were being constantly flooded (Later the director of the Kazakh Soviet Socialist Republic [SSR] Academy of Sciences Institute of High Energy Physics, I.Ya. Chasnikov, enlightened me and explained that the ingress of radioactive dust particles even as small as a micron into the lungs can lead to the formation of malignant tumors. But of course, there was no danger). It was there at Shevchenko that I heard about a certain drilling master who 20 years before had taken part in the drilling of an unusual bore hole a meter in diameter in Yeraliyevskiy Rayon. It was not a deep hole, about half a kilometer. When they had finished, the bore hole was taken under the control of the military, enormous coils of cable and boxes containing instruments were brought in, and a guard was posted.

Infected by this time with the Semipalatinsk test site syndrome, I compared the facts. Bore holes a meter in diameter were also bored for atomic explosions at the test site, and to the same depth, and along with the bomb cables attached to instruments were lowered into the ground to record the parameters of the detonation. Similar, very similar... But to what end had they torn Mangyshlak apart? Those who had taken part in the experiment could tell, if they were willing. Where to find them? At that time I did not know that the military had selected a site for yet another nuclear test site, and that on Mangyshlak, 100 kilometers from the small town of Say-Utes, during 1969-1970 not one but three atomic explosions took place at depths of 410 to 740 meters. But something there did not suit the military. Was it perhaps that enormous subsiding craters appeared at the epicenter of the explosion, like those at the Nevada test site? At Semipalatinsk that did not happen; there the ground was simply burst asunder and fissures were formed that could be hidden by pressing them flat with bulldozers. But here the atomic secrets were too obvious.

I suggested that the Mangyshlak experimenters would most likely be in Kurchatov, on the test site. It was understood that they would hardly be found so simply, nevertheless it was worth a try. A second journey to the test site along with activists from the Nevada-Semipalatinsk movement could not be put off. I was aware that it would be necessary to meet with the leadership of the test site but I understood that none of the generals would answer my question (especially after the piece I had published about the test site). How to ask it? Try circumlocution, walk round the target dropping hints? There was too little time. So I decided that come what may, given any convenient chance I would ask my question directly of any of the physicists or specialist officers. The chance presented itself and I asked a colonel (I shall not disclose his name or duties).

"I know," I said as confidently as I could, "that your people conducted tests not only at the test site but also in various oblasts in Kazakhstan, as, for example, Aktyubinsk and Mangyshlak."

"And in Guryev and Uralsk oblasts also," my interlocutor unexpectedly added, "but that was not our work, it was the Ministry of Atomic Energy and Industry."

"When was that?"

"In various years, I cannot say for sure."

"And the rayons, you do not know?"

"It was of no interest to me." The colonel was beginning to get annoyed. But I had been lucky so I decided to check one more unlikely rumor.

"Tell me, is it true that there was a case in which a hydrogen bomb was lost on the test site?"

"Utter nonsense. Some illiterate Kazakh shepherd found a cylinder on the steppe marked 'Hydrogen' and raised a panic."

Also interesting—illiterate but he could read. Amantay Kaliyev, the leader of the Nevada movement in Pavlodar told me about this case another way. By the way, a large part of the test site is located right there in Pavlodar Oblast, so that it might even be called the Pavlodar site.

"The affair happened in 1967," Amantay related. "A herder, one Botay Kaishbayev, was taking horses to Mayskiy Rayon in our oblast, and near the nomad camp at Beketay he stumbled across a strange object that was obviously of military origin. The herder was scared a J he raised a fuss. The military arrived, surrounded the place, and combed it carefully, and the strange object was loaded onto a truck with great precautions, and then it departed. The inhabitants were questioned meticulously: had anyone tried to hide any object?... And during a recent meeting between the test site chief, Lieutenant General Ilenko, and the inhabitants of Mayskiy Rayon," Kaliyev continued, "I asked him: 'So what happened, Arkadiy Danilovich, did your people lose a bomb?' 'They did not lose it, they dropped it.' And he would say no more on the subject."

What a diplomat?! However, we have already encountered the diplomacy of generals, so let us return to the investigation. Thus, by now there are four nuclear points on the map, true, still without exact coordinates. But the main thing has really been confirmed: Nuclear explosions took place not only on the test site. Does this not mean that the entire country could become a test site? USSR Deputy Minister for Atomic Energy and Industry Professor V. Mikhaylov unexpectedly reinforced this wild thought with his long statement in PRAVDA in October 1990. I quote: "In various parts of the country (that is, outside the Semipalatinsk and Novaya Zemlya test sites—author's note) since 1963 some 115 underground nuclear explosions for peaceful purposes have taken place, but at great depth and having low yields, including those used to create underground cavities, extinguish fires in gas blowouts, intensify oil recovery, and make soundings of the earth's crust for large-scale surveying for minerals." The professor went on to write that in the past 10 years alone 43 such detonations had taken place. Unfortunately, there was not a word about locations. Neither was there any discussion of, for example, whether the extra oil recovered by the nuclear method had higher levels of radiation than the norms. Atomic sounding of the earth's crust is also quite cute. I would just like to know how the ground water is behaving at the sites of the soundings, and what people who do not suspect that they are drinking water contaminated with radiation are experiencing. These are not idle questions... In the second issue of PRIRODA for 1991 two nuclear physicists describe in the greatest detail how with the help of two atomic detonations in salt domes they created underground capacities into which toxic chemicals and radioactive waste are pumped and stored in perpetuity since this is economically advantageous and ecologically safe.

God forgive me, old skeptic that I am, but I find it hard to believe in the eternal nature of anything created by human hands, particularly in our country. But I am convinced that by this method we are preparing delayed-action chemical and radiation bombs for our descendants.

"... I was on the shores of Atomkul (in translation from Kazakh this means "Atomic Lake") quite recently, last autumn, as part of a large group of foreign and domestic journalists and people's deputies. I honestly admit that I shall do everything possible to avoid having to go there again. We arrived in Kurchatov at dusk. As the stern men in uniform (no one, I believe, was below the rank of major) checked our passes at the checkpoint darkness fell. Notwithstanding the majors warned us: Cameras and video cameras must be surrendered. No photographs along the way." I almost fell out of my chair on the bus in amazement. The test site was already officially closed but this mania for secrecy persisted.

At the first news conference General Ilenko, as always, repeated that the closure of the test site had been a mistake, that we should not be weakening the country's defenses, and that the Semipalatinsk test site is the most reliable and the cleanest in the world, and that even the

Americans admit this. Probably everyone would have swallowed this lie had not an American journalist picked up the microphone and, to general laughter in the hall, stated that she had heard exactly the same words in Nevada from an American general and, of course, about the Nevada test site. To which Arkadiy Danilovich responded imperturbably:

"You can be convinced of this for yourselves. Where you will be visiting tomorrow is totally clean, with a normal radiation background."

Dozens of tape recorders, including mine, recorded these words. Later I tried unsuccessfully to understand why the general had got himself into a mess, for he was well aware of our route—the site of the first nuclear explosion, and then Atomic Lake...

Enormous melted boulders cluttered the approach to Atomic Lake, some weighing as much as a ton, thrown about in an 8-kilometer circle. You will encounter nothing similar on the steppe here. The test site people explained that in January 1965 (according to other data in December 1964—author's note) an underground nuclear explosion took place in the bed of the steppe Chagan River (which, incidentally, flows into the Irtysh) for national economic purposes—to form a reservoir. A kind of open-air physics experiment. The patter let out of the bag the fact that these boulders had been hurled out of the crater by the explosion to a height of almost a kilometer.

"So, was it an underground detonation?" I tried to get clarification from the chief of radiation safety at the test site, Colonel Samata Smagulov.

"Yes, underground," he confirmed, without batting an eyelid. This unholy lie was then repeated many times by General Ilenko and all his subordinates. Why? For in the vicinity of the atomic lake there are thousands of witnesses to this lie. True, they remain silent—they are only stones and boulders. But anyone, even the nonspecialist, understands that in underground explosions there is none of this kind of debris, and that the boulders should remain under the ground...

We move to the lake, dosimeters in hand, chattering constantly—Japanese, American, French, Russian. No, the stones are not silent. I see a French television operator by one of the boulders, feverishly tugging on a respirator and excitedly saying something to an interpreter. She translates:

"We must leave here quickly, the radiation level is too high, about 9,000 microroentgens an hour" (hundreds of times above normal—author's note). "Is this dangerous?" she asks us.

"Not at all." The painfully familiar voice on the television debates, the cheerful voice of Colonel Petrushenko, is suddenly heard. "and to prove it I shall now take a dip in the dreaded lake."

Taking off his tunic as he goes, the colonel runs to the water shouting:

"In the summer Nevzorov and I ate fish soup here..."

The colonel splashes about in the atomic lake, calling on his 12-year-old son to jump into the icy October water, promising everyone who joins him a shot of that spirit that is in such short supply here.

The dosimeter chatters desperately but it is as if we do not hear it. It is like some kind of theater of the absurd with atomic scenery.

A real nuclear catastrophe occurred here, and as a result more than 200 people perished. Perhaps the military people really did plan an underground explosion to have the ashes run into the Chagan, but that is not what happened; either there was a mistake in the calculations or a nuclear surprise. It is a secret that we are unlikely to learn. But you cannot hide the result; the explosion was a ground detonation and about 3.5 million cubic meters of earth, ashes, and rocks were hurled out from the epicenter.

One of the cleanup crew, Vladimir Zhiron from Ust-Kamenogorsk (he is now chief of a production dispatcher service in the Irtyshsk Construction Administration, but at that time was a junior foreman with the secret "Post Office Box No. 16") said this:

"I was 23 at the time, and I was strong, very strong. But I spent several days at the epicenter and admitted that I was tired: I started to have nosebleeds, my throat scraped like emery paper, and I started to choke and had an excruciating headache... It was terrible then; everything for kilometers around was strewn with radioactive ash. It had to be carried away so that it would not be carried into the Irtysh River in the spring. We worked conscientiously, did not spare ourselves. One bulldozer driver went into the atomic water with a hawser to save a bulldozer. He saved the bulldozer, but he did not last for long; he died. As for me, I left the site of the fire with chronic decorations—bleeding from the nose, disease of the pancreas, bronchitis, cholecystitis, hepatitis..."

According to Zhiron, of the 300-strong cleanup crew (the entire detachment was formed in Ust-Kamenogorsk) about 30 people are still alive. This has been the cost of an atomic explosion for peaceful purposes. Now, those who are still alive are fighting for their rights and privileges to be put on the same footing as those who suffered in the Chernobyl catastrophe. The atomic department is responding with indifferent formal replies...

The theater of the absurd also continued at the final news conference with General Ilenko. At the insistent request of the journalists the general ordered a radiation safety (or danger?) map of the test site to be brought out. Territory with a radiation background of up to 50 microroentgens an hour (moderate) was colored yellow; blue signified 100 microroentgens an hour (undesirable

to stay in the area for long), red up to 10,000 microroentgens an hour (very dangerous). Three minutes later the general gave another order:

"That's all, remove the map, we do not want the whole world to know about it."

He was splendid in his desire not to leak a secret. He sincerely failed to understand why anyone other than himself needs to know. And I sincerely failed to understand why this map is not published, why it is not distributed to the sovkhoses bordering the test site that on the sly drive their cattle to graze not only in the yellow zones on the map, but also the red zones. We saw the tracks of domestic animals on the shores of Atomic Lake. We saw people loading bales of hay onto a vehicle at the site of the first nuclear explosion, where 42 years later the readings are as high as 10,000 microroentgens, while cows grazed nearby.

"Those are not our animals," Ilenko said, "we have none there. We have forbidden grazing but they do not listen to us. We check our animals and our milk regularly, and conduct analyses. Everything here is normal."

"Why did they not warn us that we would encounter high levels of radiation at Atomic Lake and in the area of the first nuclear explosion?"

"I did not want to take you there at all. This was 'Nevada's' idea, they insisted. But I am sure that what you received in two hours at the test site was quite safe, even beneficial for the body to some extent."

We have come that far. The only thing the general did not do was add that the test site was quite suitable for the construction of a resort zone.

I realized that only independent experts can tell the full truth both about the secrets of the test site and about the nuclear explosions around it. I marked Atomic Lake and the approximate boundaries of the test site on my map. On that same trip I succeeded in learning about a source from whom it might be possible to pick up information about other nuclear explosions for national economic purposes. I am not about to tell you how I obtained it, but I have in my hands a document about 25 atomic explosions in various oblasts of Kazakhstan (my source claims that there were about 40). The document is genuine, signed by the minister of atomic energy and industry, V.F. Konovalov. The document lists the years and sites where explosions took place (without indicating the yields), and also the depths, designations, and nature of the radiation situation after the experiment.

This is what it states about the situation: "Recultivation work is being carried out on the technological areas." Excuse me: If we are talking about recultivation (what, it has been going on for more than 10 years?) then this means that the surface must have been destroyed, does it not? Is this possible with underground explosions? Or do we have more dark secrets here? As before. I also have grave doubts about the harmlessness of underground

explosions and about the purposes for which they took place—for military purposes on the test site, for peaceful purposes outside it.

Unfortunately, these doubts are not groundless. In 1973 two atomic explosions for peaceful purposes took place in Chimkent Oblast to make seismic soundings for the purpose of finding structures that would be promising for mineral surveys. So, first "Meridian-2" was set off at a depth of 400 meters in Suzakskiy Rayon (260 kilometers to the north of the settlement of Chulak-Kurgan), and then "Meridian-3" at a depth of 610 meters in Kzylkumskiy Rayon (40 kilometers north of the settlement of Tabak-Bulak). The situation was described as follows: "There have been no excursions of products from the explosion and the site has been closed." That is, do not worry, citizens, everything is in order, everything is as it was before, maybe better.

I do not know whether or not anyone found any minerals for the motherland but the "products" have in fact appeared, and the inhabitants of precisely these rayons have started to complain of deteriorating health. This year (17 years after the explosions; it could not be done earlier because no one knew about them) a commission independent of the Ministry of Atomic Energy and Industry (scientists, physicians, geologists, public figures, ecologists) was set up "to study the ecological situation and the health of the population in Kzylkumskiy and Suzakskiy rayons in Chimkent Oblast in connection with existing production facilities for uranium, scandium, and other rare-earth elements with respect to underground leaching, and also the nuclear explosions that took place in the 1970's." The words here in quotation marks are taken from the official conclusion sent by experts to the president of Kazakhstan, N. Nazarbayev. Their conclusions are disquieting. I quote: "In the underground water in both rayons strontium-90 was found, and in six bore holes cesium-137 was found, which testifies to radionuclide contamination of the water-bearing horizons. In Suzakskiy Rayon... anomalous concentrations of radioactive elements were found in underground water in 39 bore holes... Analysis of the statistical data on the state of health of the population has shown that... 65-70 percent of the total number of oncologic diseases are cancers of the esophagus, stomach, and liver... The incidence of tuberculosis and diseases in organs of the gastrointestinal tract has increased by a factor of 1.5-2.5... Because of the presence in underground water in Kzylkumskiy and Suzakskiy rayons of strontium-90 and cesium-137 we demand that the Ministry of Atomic Energy and Industry study water containment in the cavities formed by underground nuclear explosions across the entire territory of the Kazakhstan Soviet Socialist Republic. If leakage of radionuclides from the explosion cavities into stratal water is found, the leaks should be eliminated."

Fair demands, and naive. I do not know what President N. Nazarbayev had to say on the subject, but personally I doubt that it would be possible to stop the radiation that has already penetrated into the ground water, or

eliminate the leaks. How would it be done? Could one more nuclear charge be used to seal off everything? Incidentally, this not a joke. It would be a doubtful thing to entrust the monitoring of underground cavities to those same atomic people, because their answer would be the same as always: Everything is normal.

No, it is independent experts who must monitor for the atomic people. It is essential immediately to make public all preparations for atomic explosions for so-called national economic, peaceful purposes, and even better, stop them. It is essential to make public a complete map of such explosions. And it is time to close down the theater of the absurd and remove the scenery.

#### [Box, p 15]

Lest I bore the reader, let me cite only a small part of the information that I gleaned from the document signed by V.F. Kononov:

Some explosions were given cutesy code names. For example, "Lira-1, 2, 3, 4, 5, 6." That is, six explosions took place under the code name "Lira" in 1983-1984 at depths of 840 to 990 meters in order to create underground cavities in a salt dome (in Burlinskiy Rayon, Uralsk Oblast, 17 kilometers north of the village of Ilek). Other explosions are designated simply by figures and letters. Thus, in Yerallyevskiy Rayon, Mangyshlak Oblast, three explosions, 1-T, 2-T, and 6-T, took place 110-115 kilometers east of the village of Say-Utes in 1969-1970 at depths of 410-740 meters; "there was no excursion of products, subsidence craters were formed." The question is: What happened with 3-, 4-, and 5-T? There are many such omissions in the table... To judge from the document, the last explosion took place in 1987, the earliest—"A-1"—in 1966 in Dengizskiy Rayon, Guryev Oblast, at a depth of 160 meters. And there, in recent years, right through to 1979, another nine explosions took place (for some reason "A-6" is omitted) within a radius of 20 kilometers, true, now at depths of 600 to 1,500 meters. Essentially, it is just another test site.

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#### History, Effects of Semipalatinsk Operations Viewed

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[Article by L. Mostovaya; date and place not given: "Test Range"]

[Text] *Only recently, there were five of them on our planet, giant polygons known as test ranges, living by their own special laws. Nevada, Lob-Nor, Moru-rua, Novaya Zemlya, and Semipalatinsk. The closed space of one of them has ceased to be a place where the flesh of the land was mercilessly tormented. However, maimed, it will inflict harm, through no fault of its own, on everything alive for a century yet to come.*

The Semipalatinsk nuclear test range, one of the world's most active, was officially closed by a decree of the President of Kazakhstan on 29 August 1991. However, it had fallen silent 2 years ago, thanks to the protests of people living both near the nuclear monster, as well as far from it. The "Nevada-Semipalatinsk" anti-nuclear movement led this difficult struggle. And the struggle continues.

A conference of those who have suffered from nuclear tests and the "5-I" International Tribune for Global Disarmament, held in Semipalatinsk, confirmed this. Before it began, free press days in Kurchatov were organized. The information obtained in these days was striking and sometimes cast us into despair. Again, it confirmed that closing the Semipalatinsk test range is only the first obstacle to have been overcome.

### **The City That is Not on Maps**

It is most interesting that all of us, Soviet and foreign journalists and representatives of anti-nuclear movements, ended up at this only recently very secret site in the role of guests, about whom our military hosts, to put it mildly, were not very happy. The suspicion that this was so began to creep to mind at the moment when our Ikarus suddenly came to a stop on the steppe about 10 miles or so from Kurchatov. The time was most annoying for the curious, as it was not night yet but it was nearly dusk. However, all the same we did manage to discern a military "uazik" [make of automobile] standing at some distance. After a minute or so people in civilian dress arrived and checked the passenger list for a very long time. Understandably, we were traveling to a military site, but there was something in their glances and short replies...

We arrived at Kurchatov in utter darkness. The city that is not on geographic maps. The city without a cemetery. The city without crime.

It is a city built of four-story buildings with ideally clean streets. It is a city with a large number of political display stands. A city with a diarchy. A city in which half the residents are in the military.

The next morning, the almost idyllic picture surprised us: Alongside the streets, now and then figures in military uniforms appeared on bicycles. Being carried away by the sight was hindered by the thought that the sinister test range is somewhere quite nearby, and that these people on ecologically clean transport are the "cogs" of the nuclear monster.

Yet another individual feature of this town is the abundance of hotels. They are completely devoid of any luxury whatsoever, with one or two exceptions. For instance, from the severe, drab sign of the "Dnepr" hotel, an unusual name for a Kazakh town, it would have been hard to guess how different it was inside. Only the placement of foreigners in it gave away its first-class nature. People from Moscow and Alma-Ata or other

Soviets stayed in dormitory-type hotels. However, the advantages for foreigners ended with this. The next two days were the test range.

### **Counting Back: 1989**

For the first time, the military for some reason decided to show the site of the last underground explosion: a concrete plug in the form of a cylinder rising above the land, clumps of "baby's breath," and steppe as far as the horizon itself. Since there was nothing impressive to look at, the owners of dosimeters became the center of attention. The average reading was 14-17 microrentgens per hour [mr/h]. The head of test range radiation safety, S.G. Smagulov, accompanying us, answered the journalists' questions.

"Have there been accidents during the tests?"

"There have been no serious accidents. Several times, inert gases have exploded through cracks. However, they are not harmful, because they have a short half-life, from minutes to 3 days. Moreover, recently the epicenter was mandatorily encased in concrete.

**From speeches at the conference.**

**V.N. Li, head doctor of the oblast SES [Health and Epidemiology Center]:**

"Every third underground explosion was accompanied by one accident or another."

"Since what year has the explosion epicenter been encased in concrete?"

"Since 1988."

"Were people in the rayons adjoining the test range informed about forthcoming explosions?"

**"On the day before, we informed the local authorities of the date, time and place of the explosion and gave recommendations."**

Having waited for the friskiest photojournalists, who had run all over the okrug in a radius of 2 kilometers, the "Ikarus" drove us to a nuclear lake. According to military information, the 1965 explosion was produced for national economic purposes on the order of the republic Minvodkhoz. In the tremendous crater, which cut off the river Chagan, a lake by the same name was formed.

The bus stopped by a "Danger Zone" warning sign. They suggested that we go further on foot. Some took the road, others moved straight toward the shore of the lake. Perhaps only the boulders, chaotically strewn about, betrayed its artificial origin. The lake looks like a lake, reeds grow in the shallows. Off in the distance is a small home where, in all likelihood, a hunter lives. Somehow, the thought was slow in coming: People live here which means that they catch and eat fish from this lake. Indeed, they do eat them and they also sell these fish in Kurchatov. The dosimeters, which had begun to "chatter" like crazy, forced us to realize the full tragedy: from

3,000-5,000 microroentgens per hour to 10,000 at certain places near the lake! This is a hundredfold above the maximum allowable norm. The foreigners were first to rush back to the bus, regardless of the fact that L.S. Khristenko, head of the test range's seismic safety service, had not finished his story about this lake's history. Most likely, we all would have been taken out of the danger zone more quickly, if the odious figure of Colonel Petrushenko, USSR people's deputy, had not quite unexpectedly appeared. Thumping himself on the chest, he began to prove that the lake is not radioactive. After arguing with one of the Pavlodar representatives of the anti-nuclear movement, he undressed and climbed into the water, having ordered his 12-year-old son to follow his example. There, he says, what is so dangerous! No dissuasions were made and the child, despite the fact that the weather was cold, only 5-7 degrees, obeyed his father. At that moment, I thought: Dear God, please let there be as few such Petrushenkos as possible in the military, unthinking, pushing even their own offspring into an unnecessary risk for the sake of farce. Do they think about other people's children like this too? It is not merely weapons, but nuclear weapons which are in their hands...

**From a speech at the conference.**

**Orazgali Iskakov** has lived almost his entire life in the village of Znamenka, 60 kilometers from the test range.

"I remember quite well that in 1969 we pastured our cattle near Lake Chagan. I shepherded a large herd of sheep. No one ever said that it was forbidden, nobody ever drove us away from it. In the summer, in the heat, I swam in the lake several times. By 1978, spots had begun to appear on my face. The doctors said that I was sick—red lupus... They are treating me, but nothing helps. My son was born with an eye defect, and everyone in the family has anemia and high blood pressure.

Roughly another hour passed before we managed to collect the photographers. They had scattered far in search of sensational subjects. Many of them did not suspect in what dangerous places they were walking. Later, when the journalists were asking S.G. Smagulov why he had said nothing about the radiation level and why personal means of protection had not been issued, a strange answer followed:

"They notified us of this measure 24 hours in advance... And they said that I would simply be a guide, that I should do nothing more."

It was useless to ask him a question concerning professional or even simply human honor. We were convinced of this once more literally the next morning.

#### 1949

Without even issuing respirators and again without informing us of the radiation level, they took us to the site of the first nuclear explosion, which thundered on 29 August 1949. Four years later, on 12 August 1953, a

500-kiloton thermonuclear bomb was tested here. For the first time, a large-scale experiment was conducted on the effects of a nuclear weapon on people's entire life-support complex. The remnants of destroyed homes, the fused turrets of tanks, the gaping eye-sockets of "ganders" (measuring devices were installed on these turrets during the above-ground tests)... The ominous evidence of a creation of the human mind. Parity with America was achieved at that time. Nine to 10 days after the first explosion, the residents of Karaul and another 200 settlements were returned to their homes. The dose of external gamma radiation was terrible: 50-60 roentgens per hour. S.G. Smagulov comments on this tragic situation, which has already become history.

"As a specialist, I can say that people should have been returned to these places no earlier than after two-three months.

"You said that all the nearest settlements were evacuated. However, the Mayskiy settlement is located all of 30 kilometers from here and they never evacuated the people from it. What is this—an experiment on people?"

...

"During the first nuclear explosion, were people used as biological test subjects?"

"No, only animals."

**From a speech at the conference.**

**Zhakhiya Akhmetov**, 64 years old, of the Znamenka settlement.

I served at the test range from September 1947 to October 1949. On 29 August 1949, 50 of us, soldiers from different companies, were driven out to the test range, formed up, and issued dark glasses. Then they ordered us to descend into a trench. There were a dog and six rabbits there. Sheep and cattle were tethered not far from the trench. Cigarettes and sugar were scattered around. The officers gave a command to lie down and left. The bomb fell from above. Everything burst into flame. I do not remember how many of us there were. I wanted to smoke, and we took the cigarettes that were heaped on the ground. An officer arrived and said, 'What are you doing? All this is contaminated.' Later several times they called me to see the doctors and gave me some kind of liquid to drink from a test-tube... I was discharged from the army under oath. I was afraid even to say anything to my relatives. After the test range I was all black and had terrible headaches. For many years I rubbed my head with vinegar and fatty sheep's tail. I made cuts on my feet with a razor and squeezed out black blood. I was mocked because I could not sleep on account of the pain. I had nine children, but two died. The others are all sick. My 35-year-old daughter has been an invalid since birth. My grandchildren are also sick. My relatives talked me out of it, but on television I saw that Americans had been at the test range, and possibly they could tell me everything...

"Fresh cattle tracks can be seen everywhere here, at the very epicenter. Is grazing actually allowed?"

"No, grazing is prohibited."

"Then how do you explain the fact that a haystack appeared several kilometers from the epicenter last year? The people's deputies tested it: It was radioactive (120 mr/h). I hope you will not deny that many farms conclude agreements with the leadership and carry out the preparation of cattle fodder in the territory of the test range?"

"Yes, in fact, we permit grazing and hay-mowing in radioactively clean territories."

**Many scientists claim that in order to obtain an accurate picture of radiation contamination in the territory of the Semipalatinsk test range, which is no more or less than 800,000 hectares, it is necessary to take measurements every 20 meters.**

Having once again received an excellent dose of radiation, all covered with dust, we returned to Kurchatov. Exhaustive answers to many questions were not obtained in these two days. Therefore, we requested a press conference with the head of the test range, A.D. Ilyenko. That evening a map of the radiation traces was shown to the journalists. However, Ilyenko did not let us take photographs. True, he did favor those gathered with a brief comment: Of the rayons adjoining the test range, only Abayskiy Rayon "glows" as before.

Directly within the test range territory there are only two places with high radiation, the nuclear lake and the site of the first nuclear and thermonuclear explosions. The lieutenant general provoked a question with this information: Why was the international group of journalists not equipped with personal protection devices and how come no decontamination was conducted? With the coolness inherent to the military, Ilyenko answered:

"I did not want to show you the site of the first explosion. All claims should be made against the organizers. They asked me to show it, I showed it."

What motivates these people in military uniforms? Is it really just the feeling of losing an inherited estate, where they were unlimited masters, and therefore their reaction borders on cynicism? Even when journalists stand before them? Only the fact that test range employees were together with us at the sites with high radiation prevents answering in the affirmative. They must be their own worst enemies, to take such risks.

We managed to dot all the "i's" at the conference in Semipalatinsk.

#### **Test Range Employees Do Not Need Immunity Vitamins**

It happens that quite recently Soviet scientists have developed pharmaceutical stimulants which help an organism cope with the damage done by radiation. They

were used for the first time in Chernobyl, half a year after the accident. The immunity vitamins, as they are called in the West, were added to food products. Many countries are already buying these stimulants from us.

Professor G.M. Barenboym, director of the International Ecological Station for Monitoring the Surrounding Environment, spoke of this in his speech at the conference.

"Grigoriy Matveyevich, does this mean that the test range employees feel safe because they are taking immunity vitamins?"

"I cannot say for certain. There is a certain nuance here. There are people who are very susceptible to radiation, and for them even small doses of radiation is a great problem: The immune system is destroyed and abnormalities may arise even on the cellular level. Another category is moderately susceptible. However, there are also those, on whose bodies radiation has virtually no negative effect. When the archives are declassified, it may be possible to see that the test range was a gigantic mincing-machine which mercilessly rejected the susceptible ones and accumulated people whose bodies are not very susceptible to the influence of radiation. There is no cemetery in Kurchatov, because they commissioned people, to put it simply, and sent them away to live out their lives in other cities for a few years, or sometimes only months. A kind of natural selection. Incidentally, the human organism reacts individually not just to radiation. I happened to observe the following at the Ust-Kamenogorsk Lead and Zinc Plant. A person stands in the shop where the lead is poured into the forms, literally in lead steam. He wears only a gauze bandage as a means of protection. Another person would be dead in a year under such conditions, yet this one is working.

"Nonetheless, the soldiers boast that there are third-generation families in Kurchatov, and therefore there is no harm whatsoever from the nuclear weapons tests. They present this fact as proof of the harmlessness of nuclear tests."

#### **Cancer Victims May Double By the Year 2000**

Natural selection... A secret clinic officially called the anti-brucellosis clinic has existed in the oblast for a quarter century. The reports on its data are signed with two seals of secrecy. To this day the research results are stored in secrecy. However, that which is being done with the people of the rayons adjoining the test range can no longer be hidden.

The ceaseless pain for loved ones does not let Marina Zinatovna Iskakova from Bashkol village, Beskaragayskiy Rayon, stay silent. Her 18-year-old brother died of lung cancer. "Why has the Iskakov family been wiped out in the course of 40 years? Who is responsible for this?" the woman asks through her tears.

Doctors are sounding the alarm: There is not a single healthy person in Semipalatinsk today (from a count of a thousand people, a thousand are sick) and 450,000

residents of Semipalatinsk have been subjected to direct radiation. In a year, 2,500 patients pass through the oncology clinic. Due to the absence of modern equipment for early diagnosis, the diagnosis is made successfully when the disease is already irreversible. It is painful to speak of what awaits them in the few remaining years, or sometimes even months, left to them.

The cost of one experimental nuclear device and its underground testing is about 25-30 million rubles on the average. Yet in the only 200-bed clinic in the entire oblast, the doctors are forced to work with a 1958 short-focus unit. They managed to get new gamma-therapeutic equipment, but a special canyon is needed for it. Its construction is frozen: The republic health care system has no money.

"If not for humanitarian aid," says Albert Aleksandrovich, "I do not know in general how we would work. After all, today 200 of every 1,000 people suffer from oncological diseases. The long-term forecast is even less comforting: By the year 2000 this figure will double."

"But the tests at the range have stopped. Why such a forecast?"

"Radiation is insidious, the effect does not manifest immediately and is wave-like in nature. A sharp increase in oncological diseases was observed in Semipalatinsk Oblast 4-15 years after the first tests. Then in the course of 7 years there was a decline. At 23-27 years, a new outbreak of malignant tumors occurred. Right now, tumors of the lungs and gastrointestinal tract and blood diseases predominate. It is no longer those who fell under the cloud who are getting sick now, but their grandchildren. In order to save people, we need equipment that will enable us to detect the signs of disease in the early stages."

Yes, already the third generation living next door to the nuclear test range is suffering. R.L. Ivanov, doctor of medical sciences, directed the attention of those present to the fact that young women of child-bearing age increasingly often are falling ill with red lupus. Children with strange birth defects and even mutants are being born. To see them with one's own eyes, it suffices to visit the anatomical museum of the Semipalatinsk Medical Institute. In the jars are those damned by the creation of human hands, by the nuclear tests, by the ring of industrial enterprises that is stifling the city, by herbicides, pesticides...

#### Does the Test Range Have a Future?

It mandatorily should. The people have a future. There is no industry in Kurchatov which rules out conversion. However, the town's specialists represent its most valuable intellectual potential. The laboratories are equipped with unique instruments. There is everything for a scientific center, which would work not to improve weapons, but would solve, for instance, the problems of nuclear power engineering.

The depths of the test range are rich in coal and other minerals. Academician Velikhov repeated this several times, when the question came to the future of the Semipalatinsk test range. The military men heard that the hot energy of the underground explosions has ignited the coal, but modestly kept silent.

"I myself personally saw two bore-holes from which fire was shooting out," I.Kh. Isakov, a geological engineer who on his own initiative has spent many years studying the soils of the test range, reported at the conference. "The fires have been blazing for five years already and only now have come to the surface."

He also warns that burying nuclear and chemical wastes in the territory of the test range (such proposals were voiced) would be a fatal error, because a new man-made seismic zone has appeared as a result of the nuclear tests. This happened because the test range site was selected without considering the specific features of geological structure. First, the deep faults have a connection to the active zones of the earth. Second, the test range area is a mosaic of tectonic plates. The earthquakes in Zaysan were the first alarm, indicating that these plates have begun to move. There is a danger that the hearths of the nuclear explosions, which today seem reliably immured in a glassy casing, will be crushed like an eggshell. Then the radioactive poisons will get into the underground waters and, thus, also into the Irtysh. To imagine what sort of catastrophe this might lead to, it suffices to remember doctor A. Abylova, an laboratory associate at the Scientific Research Institute of Labor Hygiene and Physiology. She discovered that the water of certain wells in Egindybulakskiy Rayon has mutagenic properties. Karimbek Kuyukov, the young artist who was born without hands, is an offspring of these places. Really, must children who from the time they are in diapers know what nuclear tests are also experience this? Explosions were conducted every 23 days on the average... Probably only children can talk about this in such a way.

Few in the conference hall could hold back the tears, when a nuclear mushroom appeared on the screen after the amazing dance and song compositions, performed by little girls and boys from the Karaul settlement... We also remembered the bright faces of the children from Kurchatov. From the way that one and the same flocks accompanied and greeted our buses, it was obvious that they are quite fed up with this isolation from the outside world. In the only city on the planet to have sprung up in the territory of a test range of death, there is the "Lukomor'ye" Studio. A fairy-tale world shines in two small rooms: various objects, little animals, masks, and dolls painted in the style of Khokhloma, Dymkovo, and Gzhel. And all this was done by the hands of children.

Perhaps it was predestined by fate for the author of the immortal saying "Beauty will save the world" to come to these lands...

### Future of Lithuania's Ignalina Nuclear Power Plant Examined

92WN0292A Vilnius GIMTASIS KRASTAS  
in Lithuanian 23-29 Jan 92 pp 1, 4

[Interview with Rimvydas Jasiulionis, a physicist; Andrius Astrauskas, an ecologist; and Leonas Asmantas, Lithuanian minister of energetics, conducted by Leonardas Aleksiejunas: "The Nuclear Electric Power Plant of Ignalina: Danger and Salvation"]

[Text] This is an excerpt from a resolution, adopted on October 23, 1988, at the founding congress of Sajudis: "The construction of the Ignalina nuclear power plant is a result of the Soviet Union's colonial policy and of total disregard for Lithuania's sovereignty. It is imperative that the power plant be transferred as soon as possible to the jurisdiction of Lithuania and that an international commission, including experts from all interested countries and from the republics of the USSR be invited." This has happened. The Ignalina nuclear power plant belongs to the Republic of Lithuania. With all its threats, with the responsibility for its security, and with the hopes of possessing a powerful, affordable power enterprise. What does the Ignalina nuclear power plant mean to us? We are conversing about this with physicist Rimvydas Jasiulionis, ecologist Andrius Astrauskas, and the Minister of Energetics of the Lithuanian Republic, Leonas Asmantas, who is also one of the few specialists of nuclear power in Lithuania, a professor, doctor of science, chairman of the ecological monitoring of the Ignalina nuclear power plant ever since the beginning of the research (1976).

#### Rimvydas Jasiulionis: The Devil Is Horrible, But Not For Us Alone.

The nuclear power plant of Ignalina was supposed to become the largest nuclear power plant in the world. Its first reactor, which was 1.5 million kw strong, was installed in 1983. Following the completion of the first line (with two 1.5 million kw reactors), plans called for a second one, which would have increased the general power to 6 million kw, and a third one, with projected two more reactors with a record power of 2.4 million kw. All that was located next to a lake covering an area of 45 sq. km., in the watershed of the Nemunas and Daugava rivers. Research, planning and construction were done in haste, simultaneously, while experiments were being conducted at the construction site.

During the discussion of the second line reactor designs, the Institutes of Physics, Botany, Ecology, Research of Physical-Technological Problems of Power, and others of the Lithuanian Academy of Sciences, which had explored the impact of the Ignalina nuclear power plant on the environment, presented their conclusion that the Druksiai lake can cool nothing more powerful than the reactors of a general capacity of 4 million kw. It was perhaps the first time that the USSR Ministry for the Production of Medium-Sized Machinery gave in to the Lithuanian scientists by agreeing to abandon the plans for the construction of a fourth reactor. The project for the second line of the Ignalina nuclear power plant was halved. Not a single ruble

was allotted for the construction of the fourth reactor. Meanwhile, a design for a separate third reactor was prepared and its construction reached a halfway point after an expenditure of some 300 million rubles. Following the Chernobyl accident, however, its construction was stopped by public action.

From the ecological point of view, nuclear power plants are superior to the thermal ones because, first of all, they produce energy without simultaneously generating carbonic gas, which, upon reaching the atmosphere, contributes to the greenhouse effect. The bugaboo of a nuclear power plant is its radioactivity. The radio-nuclides produced at the Ignalina nuclear power plant—cobalt-60, manganese-54 and tritium—have contaminated the soil of the power plant area. They have also been found in the sediment of the Druksiai lake bottom. Because of a very limited flow, the concentration of tritium in the lake has increased. The ionizing radiation of the inert radioactive gases which come out of the nuclear plant's stacks increase the dose of ionizing radiation that exists in nature by 3-4 percent. Air currents carry radio-nuclides to some parts of the environment in such quantities that the charge of a dose increases from the natural level of ca. 10m/R per hour to 25-30 m/R per hour.

The burial of radioactive wastes is also a sensitive question. Used up uranium strips containing billions curie of products of radioactive splitting are guarded in pools near the reactors. The town of Snieckus, with its 35,000 inhabitants, is situated at a dangerous distance from the nuclear power plant, next to the enclosed lake of Visaginas. The town's and the nuclear power plant's purification equipment return the water to the Druksiai lake. Two thirds of the heat generated by the nuclear power plant also flows to that lake by a river that is as large as Nemunas.

In comparison with the other power plants of the former Soviet Union, the environment of the Ignalina power plant is less polluted with radioactive materials, but the potential for pollution is great. In order to reduce the risk for the inhabitants and to guarantee a safe exploitation of the power plant, we must need a broader and more active cooperation with the experts of Sweden, Germany and other countries; we must also create contemporary information systems.

#### Andrius Astrauskas: Shall We Tame the Threat of Degeneration?

When these matters were managed by the agencies of the former USSR, and not by Lithuania, the entire natural environment in the region of the Ignalina nuclear power plant suffered enormous damage. This had to do, first of all, with an ecologically wrong choice of the location for such an object and with the way construction and exploitation were done. Hundred-year old trees, entire forests were felled, obsolete building materials and excavated soil were dumped into the Druksiai lake. The lake was being polluted with petroleum products and with communal sewage. A large group of Lithuanian scientists are investigating the impact of the nuclear power plant on the ecosystems of the

lake and of the land. The results of the investigations are being published in a series of scientific articles. "Thermal Energetics and the Environment" (9 volumes have been published so far, the tenth one is in print).

Significant negative changes in the ecosystems of lake and land have been observed; many of them are irreparable even if the nuclear power plant were to be stopped. The rising temperature of the lake's water, the pollution by chemical compounds and radioactive materials, and other processes connected with the nuclear power plant have caused the Druksiai lake to "age" much faster than those without such neighbors. The lake gets choked up with silt and overgrown with vegetation. The most valuable species of fish are disappearing. The accumulation of radioactive products of the power plant's fuel fission threatens the lake's life system with genetic degeneration. The results of the accident at the Chernobyl nuclear power plant are contributing and will continue contributing to these problems.

Following the restoration of Lithuania's Independence and the complete transfer of the Ignalina nuclear power plant to our jurisdiction, ecological investigations have taken a new turn. In the past, we had to send a part of the analyses of the samples we had collected to other scientific institutions of the Soviet Union - for processing and further examination. How could we check if their conclusions were genuine? We were denied permission to publish the data. We were also unable to obtain up-to-date research equipment. The Lithuanian Ministry of Energetics has provided us with the latest foreign equipment for the continuation and expansion of ecological monitoring. We hope that the Ministry of Energetics will go on supporting our scientific efforts in the future as well. Secrecy has disappeared. We are maintaining contacts and exchanging information with specialists working in Russia, Sweden, the U.S.A., Czechoslovakia, Poland, and other countries.

#### **Leonas Asmantas: So That Nature Would Not Turn Against Us.**

The Ignalina nuclear power plant produces 55 percent of Lithuania's electric power; its share of the sum total of energetics in our Republic is 57 percent. At present it is operating under the so-called base regime: it is not changed either day or night. It supplies whatever electric power is required. An agreement with Estonia and Latvia was signed on January 7 and now we have a joint energy system. Its administrative and control center is in Riga. We have drafted a time-table up to April 1, in order to use up as little fuel as possible. Repair work on the first reactor of the Ignalina nuclear power plant is scheduled to start on January 29, which means difficulties in supplying electric power, which will be reduced. I fail to comprehend the irritability of some managers of industrial enterprises. For all practical purposes we get no fuel from the outside.

How does the Ignalina nuclear power plant provide itself with fuel? We buy the heat-isolating element collectors (cassettes), which contain nuclear fuel, in Russia. Its

price, as compared with the previous years, has gone up ten times. The fuel used up by the Ignalina nuclear power plant is equivalent to 4 million metric tons of "mazutas" [greasy leftovers from distilled petroleum] or 4.5 billion cubic meters of natural gas.

Although our funds are limited, we are trying to continue the program for the investigation and evaluation of the condition of the region of the Ignalina nuclear power plant. The coordination of the program has been entrusted to me. We began collecting the data even before the Ignalina nuclear power plant was put into action. I have some critical remarks to make concerning the scientists who are acting as observers. Their contacts with foreign scientists who are working in the same field are rather weak. They have occasional chats about various methods, but I was unable to make them publish a booklet (for example, in English) to provoke the foreigners' interest or anxiety, to help to broaden the cooperation among the experts on nuclear energy, so that we would have a clear picture and clear-cut goals, and would know how to stay away from the violations of ecology when nature may be powerless.

The storing of radioactive waste next to the nuclear power plant is nothing unusual. That is the procedure everywhere. We have conducted many negotiations with the former Ministry of Atomic Energy of the Soviet Union. Since it has disintegrated and a similar ministry has not been formed in Russia, we have prepared some six projects on where to keep the used up fuel of the nuclear power plant. The sixth variant: an agreement was made to return it to Russia. Its parliament has adopted a decision that used up fuel from the nuclear power plants in other states would not be accepted, but we would receive it from Russia. Will this decision remain valid? If, nevertheless, we fail to reach an agreement with Russia, then we shall transfer the used up fuel to another depository of our own. May I remind that it becomes less dangerous after three or four years. And as for the fuel that "feeds" the Ignalina power plant, I have contacted more than one foreign company. At this point it is difficult to say if we shall get any.

I do not think that the Ignalina nuclear power plant will cause a further deterioration of ecological conditions. Should this happen, we ought to accuse ourselves. Up to the August events, the power plant for all practical purposes did not belong to us and we were unable to communicate with its management. Our advice was not accepted and there was no discussion. New equipment is now being assembled at the Ignalina power plant and the data it provides about the plant's functioning will be promptly conveyed to our Ministry of Energetics. An Atomic Watch Committee will move into its premises. Together with Sweden and Russia we are preparing a program to evaluate the risk factors of the nuclear power plant. The Swedes are seeking better conditions for cooperation and closer contacts in Lithuania. We have been inviting nuclear energy specialists from abroad and will also train them at the Kaunas University of Technology.

## REGIONAL AFFAIRS

**EC To Finance THERMIE Clean Electricity Production Project**

92WS0269H Brussels *EUROPE* in English 6 Dec 91  
p 10

[Article: "(EU) EC/Energy: The European Commission Announces It Will Finance Technology for Electricity Production That Reduces CO<sub>2</sub> Emissions by 20%. Within the Framework of the THERMIE Programme"]

[Text] Brussels, 05/12/1991 (AGENCE EUROPE)—The European Commission announces that it has decided to finance a project for the development of electricity production technology able to reduce CO<sub>2</sub> emissions by 20 percent as compared with traditional coal power plants.

Financing comes under the THERMIE programme (European technologies for energy management) and concerns the design, construction and demonstration of an electricity production unit fuelled by gasified coal through the idea of combined cycles (IGCC—Integrated Gasification Combined Cycle). The project will be developed in collaboration with six EC electricity enterprises. It will benefit from a first tranche of MECU15, from Community financing.

IGCC technology is currently considered as representing future electricity production from coal, as it makes it possible to drastically reduce polluting CO<sub>2</sub> emissions as well as sulphur dioxide and nitrogen oxide. Further to the Council's request (THERMIE regulation) to organise European cooperation around a major transnational project using this technology, the Commission has taken this decision which is the first concerning a "targeted" project in the framework of the "THERMIE" programme.

The project will be implemented by four Spanish electricity companies (ENDESA, Hidroelectrica Espanola, Sevillana de Electricidade, Hidroelectrica del Cantabrico), by Electricite de France and Electricidade de Portugal, on the Puertollano site in the centre-south of Spain. Other electricity companies have already informed the Commission that they wish to join in this first Community attempt at collaboration in thermoelectric production.

During the demonstration period, a large range of coals (EC and international) will be tested. After this period, the IGCC power plant will operate with bituminous coal produced in the open-skies mine in Puertollano. Emissions of SO<sub>2</sub> (sulphur dioxide) and NO<sub>x</sub> (nitrogen oxide) will be, respectively, 40 and 11 times less than limits laid down in the Community directive on emissions from electricity power plants.

## FRANCE

**Air Transportation Effects on Atmosphere To Be Studied**

92WS0298A Paris *AFP SCIENCES* in French  
12 Dec 91 pp 11, 12

[Article entitled: "Government Creates 'Airplane-Ozone' Committee to Study the Effects of Air Transportation on the Ozone Layer"]

[Text] To buttress the multidisciplinary research being done around the world on the destruction of the ozone layer, the French Government announced on 24 December that it was creating an Airplane-Ozone Committee to investigate the effect of air transportation on stratospheric ozone. The committee's work should serve to "furnish the scientific and technical data needed to draft an international set of regulations" and to expand scientific exchanges with other countries.

The Ministry of Equipment, Housing, Transportation and Space, the Ministry of Research and Technology, and the Ministry of the Environment took it upon themselves to create the committee. According to their joint communique, the Airplane-Ozone Committee will have an average budget of 5 million French francs [Fr] over a four-year period that will begin in 1992.

The committee will be made up of 15 members and will be presided over by Mr. Jean Carpentier, a high-ranking scientific advisor to the National Office of Aerospace Studies and Research (ONERA).

There is a growing interest around the world in the impact of air flight on the atmosphere, and in particular on the atmospheric and stratospheric ozone. A great deal is at stake, both in terms of protecting the environment—the ozone filters ultraviolet waves—and safeguarding the aerospace industry.

Because of the criticism that was directed against the Concorde, France created a Committee for Stratospheric Flight (COVOS) 20 years ago. COVOS's work furthered scientific knowledge of the atmospheric ozone at that time. "What is needed now is to synthesize the research that has been done and give it the scope needed to expand air transportation without neglecting environmental imperatives," stresses the communique.

The bottom of the stratospheric ozone layer comprises the air space between 10 and 25 kilometers of altitude. The number of flights there is increasing, since most transoceanic flights are made at around 10,000 meters, and the number of space flights is also expected to rise. The Airplane-Ozone Committee will therefore focus on the effect of gases released into the stratospheric ozone layer, which is already under attack by other emissions of human origin.

Individuals who are recognized as specialists by the scientific community, the aeronautics industry, and government authorities will sit on the committee. An inter-ministry commission headed by the civil-aeronautics programs administration will monitor the committee's work and distribute budget monies.

The Research and Environmental Ministries are already participating in research on the upper atmosphere through the "Middle Atmosphere" and "Atmospheric Phase of Biogeochemical Cycles" programs. The programs are being conducted by the CNRS (National Center for Scientific Research) and the CNES (National Center for Space Studies).

### **Government Agency To Keep Inventory of Radioactive Waste Storage Sites**

92WS0286C Paris LE MONDE in French 18 Jan 92  
p 18

[Text] ANDRA [National Agency for Radioactive Waste Management] will be undertaking a nationwide inventory of sites in which radioactive waste is stored, its director, Henri-Edme Wallard, indicated on Tuesday, 14 January. He said that this task has now been made one of ANDRA's missions as defined by the 30 December law on radioactive-waste management research.

This law, stemming from proposals by the Parliamentary Office of Scientific and Technological Choice Evaluation, and published in the 1 January issue of JOURNAL OFFICIEL, was passed by a very large majority of the National Assembly and the Senate (LE MONDE of 29 June and 8 November 1991). In accordance with the Office's recommendations, the law modifies ANDRA's statutes radically, detaching it from the CEA [Atomic Energy Commission] as an "industrial and commercial public establishment" [EPIC] in its own right, and placing it under the supervision of the Ministries of Industry, Research, and Environment.

This law assigns to ANDRA, in addition to its traditional missions, that of "listing the state and location of all radioactive waste found in the national territory." All waste-disposal sites are included, those containing low-level radioactive waste, such as, for example, the CEA waste-disposal sites at Bouchet and at Saint-Aubin (Essonne) and the former uranium mines at Limousin, as well as EDF [French Electric Power Company] and COGEMA [General Nuclear Materials Company] installations where spent fuels and highly radioactive reprocessing residues are dumped.

That does not mean that ANDRA will take charge of sites that are not presently under its responsibility. Mr. Henri-Edme Wallard pointed out. Its task is solely to draw up an inventory based on available documents and reports on these sites. Thus, ANDRA's role will be solely that of "collector and retransmitter of information." It will centralize all the data so that all interested persons may have access to "the means of forming a global view of the problem."

Paralleling these new responsibilities, ANDRA will continue carrying out the missions that have traditionally been assigned to it since its creation in 1979. The law has confirmed its active role in studies and research aimed at defining, by 2010 at the earliest, the form of management of long-life and highly radioactive wastes currently being dumped temporarily at their respective production sites.

The management of disposal sites for short-life, slightly and mildly radioactive waste remains, of course, in its province. In this regard, the Aube disposal center received, on Monday, 13 January, its first "parcel" of waste: A truckload of 28 barrels, 24 of which came from the EDF nuclear plant at Bugey dans l'Ain.

This waste-disposal center is located at Soulaines, approximately 50 kilometers east of Troyes, and is designed to receive, between now and the year 2025, a total of 1,000,000 cubic meters of slightly and mildly radioactive waste (LE MONDE 10 October 1991). This "cemetery" is designed to last for three centuries, the time needed for the radioactivity of the products it holds to be divided by a factor of 1,000. It will gradually take over the functions of the Manche center, which is presently operated by ANDRA near the Hague, and which is slated for closing by 1994.

### **Future Steps for Waste Treatment Announced**

92P20161A Paris LIBERATION in French 23 Jan 92  
p 35

[Article by Sylvaine Villeneuve: "Lalonde Gives Waste Material Ten Years to Disappear"]

[Text] Ten years from now, the garbage dumps which spoil our countryside and atmosphere at city limits will have disappeared. This was the commitment made yesterday by the government at the conclusion of Brice Lalonde's address to the council of ministers. In ten years, all waste will have to undergo treatment. Only the final residues will be discarded in dumps. "I will see to it that within ten years, not one French citizen will have to endure the harmful effects of our current waste management system," said Edith Cresson. The intention is noble: she announced the end of the "throwaway" era.

Currently, there are 6,700 dumps in existence which accept household and common industrial waste material that has not undergone the slightest treatment. Each year, 30 million tons of household waste are produced in France, 150 million by industry, and 400 million by agriculture. However, one portion is already exploited, allowing, for example, a savings of 450,000 tons of oil per year, thanks to heat-recovering incineration. However, 65 percent of household trash does not yet undergo any treatment. Without expecting to find gold in garbage cans, it is possible, however, to hope to produce energy, recycle certain products and discard others, and create some tens of thousands of jobs in service activities. This policy would represent a new market of nearly three billion francs per year.

Another measure announced was the opening of 160 intercommunal waste material treatment installations. This stirs up the "nimby" (not-in-my-backyard) fight, a reaction commonly shared by all French citizens who still view as undesirable the establishment of household waste treatment plants near their homes. In a perverse way, this ends up increasing the number of unauthorized dumps. However, this desire presupposes finding within the next ten years 160 French boroughs which will accept such installations. This will not be an easy task during an electoral period. To mitigate these qualms, the boroughs concerned will be assisted financially. The principle of a fee has already been accepted. It will cost 20 francs per ton of waste material, industrial or household, deposited in a dump. Who will pay? Industries and local groups still responsible for collecting trash. Down the line, 300 million francs will feed a fund created at the new Agency for Environmental and Energy Control (AEME). This fund will help cities pay for waste treatment plants. "Twenty francs is not enough to discourage dumping, it is rather symbolic; however, it illustrates the tendency in the coming years," remarked Brice Lalonde.

In a purely economic logic, a fee of more than 100 francs would have been needed to encourage local groups to equip themselves with, for example, trash incinerators, along with a simultaneous reduction of other taxes, so as not to increase the overall burden of the French tax system. Direct dumping would then be a luxury. However, in many ministry offices, this fiscal approach to the environment is still heretical. "This fee of 20 francs per ton is insufficient to be dissuasive and is somewhat similar to a right to pollute; however, the idea is only just beginning. It's a start," Brice Lalonde acknowledged.

It must be pointed out that the battle just to obtain this "symbolic" fee was tough, with the Ministries of Economy and Industry opening crossfires in all directions. Discussions within the government lasted months. Brice Lalonde had introduced the idea over one year ago, threatening to resign in the fall, if his policy were not adopted. Finally, it was Edith Cresson who arbitrated, as late as yesterday morning. Up until then, the principle of the fee had not yet been accepted. An essential part of the financing of this ambitious program had been held up.

However, the Ministry of Environment yielded on one point, that of special industrial waste (containing noxious or dangerous elements). The Minister of Industry, Dominique Strauss-Kahn, had requested a report on the matter from Jean-Rene Fourtou, the president of Rhone-Poulenc. Instead of a fee, the latter advocated that manufacturers adopt a voluntary mechanism, which would probably produce some two billion francs. "Very well, perfect, if they organize themselves, it's better than having to regulate them," said Lalonde. However, the numerous difficulties concerning the stockpiling of special industrial waste material will have to be solved after the next five years.

Finally, the last measure: The importation of foreign household waste will be banned. This was already the

case for industrial waste. However, in some countries like Germany, where dumping is simply prohibited, certain cities were happy that trash could still be taken to France. That will no longer be possible.

All these measures are being enacted at a time when manufacturers have already established a reprocessing plan for packaging materials and for financing their recycling. Other measures are still being studied but could be integrated into the waste bill which will be discussed at the end of the spring. France could thus force enterprises which buy up industrial sites to establish a soil survey, as is already practiced in the United States. This would make it possible to fight against numerous private industrial dumps, poorly controlled, which are still being hidden in the vicinity of factories.

## GERMANY

### Biomass Experiments in Eastern Germany

92WS0335A Munich SUEDEDEUTSCHE ZEITUNG  
in German 9 Jan 92 p 40

[Article by Christa Friedl: "China Reeds Instead of Brown Coal"]

[Text] At first glance the plant is quite inconspicuous. The knee-high tufts barely rustle in the cold wind, withered plant parts cover the swampy ground, freezing December nights have left dead spots on the thumb-wide leaves. Georg Vogel sees it quite differently however. The Director of the Central Research Institute in Grossbeeren near Potsdam surveys the hundred-meter-long reed-covered field and remarks: "The *Miscanthus* you see here is just six months old. What other plant in the world grows so fast?" Indeed, the reeds produce 15-times more biomass per surface unit than an average forest.

The Institute's director, Georg Vogel, wants to harvest in a few months. That which is now shining in small tufts in the east German sun represents for many the energy source of the future. "By using *Miscanthus*, the greenhouse effect could be contained," Wolfgang Staender, a Munich resident, who is much involved in promoting the elephant or China reeds, believes. Were oil, gas, and coal to be replaced by a rapidly growing biomass, then, in the opinion of the Munich scientist, a power source would be assured to all of mankind. When plants are burned for power, they can only release back into the atmosphere as much climate-affecting carbon dioxide (CO<sub>2</sub>) as they took in from the air and converted to biomass during their growth period.

China reed, *Miscanthus sinensis*, belongs to the so-called renewable raw materials like rape, flax, or exotic pharmaceutical plants. What these plants have in common is that they deliver fresh from the field a basic material for the extraction of a particular raw material. From flax, for example, fiber and linseed oil has been extracted since antiquity; from rape, a substitute diesel fuel; from pharmaceutical plants, valuable substances for medicines.

China reeds play a special role among the renewable raw materials. Their hollow stalks, after they have been ground to a powder and burned in a power plant, produces electrical current and heat.

#### Approval to Cultivate

Unfortunately, renewable raw materials do not attract much interest. According to the German Ministry of Research and Technology (BMFT), only 46,000 hectares in Germany are presently given over to renewable raw materials. For years, even *Miscanthus* has been grown in only a few niches. But now Bonn has promised financial aid to grow China reeds. BMFT will assign DM30 million through 1994 to smooth the way for the reeds to enter the power plants.

In this regard, experts estimate that, by the end of this century, Germany will be able to dispense with 4 million hectares of cultivated land currently used for food production. And in the five new Laender (states) there is already superfluous farm acreage, the soil of which is often loaded with harmful substances. This acreage provides a golden opportunity to grow renewable raw materials. Under the care of the former GDR Central Research Institute for Vegetable Production, *Miscanthus* is to be grown on a total of 100 hectares in 12 sites in the Potsdam, Cottbus, and Frankfurt/Oder districts. The indestructible reeds not only grow rapidly, but also in highly contaminated soils. "For example, for decades east Berlin drainage water was washing about in Grossbeeren," Georg Vogel recalls. Soil analyses today present the bill for this so-called "waste management." More than 300 milligrams of copper, 250 milligrams of lead, and 30 milligrams of cadmium per kilogram of soil.

Nevertheless, there is no reason for any great optimism. "We have to do far more to make the use of such fuels economical," Heinz Riesenhuber, the federal minister of research recently warned during a visit to Grossbeeren. There is still insufficient precise knowledge about the cultivation, harvesting, processing, and use of *Miscanthus*. "First, for example, we have to find out how much of the heavy metals in the soil actually enter the plants. Juergen Roemer-Maehler, director of BMFT's renewable raw materials section, explained. These heavy metals are again activated during the cultivation of the reeds and in the end are found in the ashes and smoke after the reeds are burnt. Questions dealing with the most suitable varieties of *Miscanthus*, about fertilizers, pesticides, and water requirements are still not resolved.

But the lack of knowledge about the reed and the meager funding (at least in the past) to support its cultivation are not the only obstacles that have held *Miscanthus* to such a limited acreage. "It is urgent that outstanding questions as to the plant's possible applications first be clarified," the BMFT recommended in a just released interim report entitled "Renewable Raw Materials." Only when the use of plants as energy sources is fully understood will their cultivation be worthwhile.

The hurdles to be overcome in the energy market have been set quite high. A prime prerequisite for the use of reeds as a fuel is the establishment of a decentralized energy supply system, since the cultivation, harvesting, processing and burning can only be organized economically on a regional basis. Yet the chances of accomplishing this have been considerably spoiled by the energy agreements concluded between the eastern German communes and the three large western energy suppliers (EVU) in 1991.

At the same time, the BMFT interim report cites good reasons for the establishment of a decentralized structure in eastern Germany. Unlike the situation in the old Federal States in the west, heat networks in the east, capable of carrying economical energy from smaller power plants, are widely distributed. In addition, there are numerous smaller power plants in the ex-GDR, with outputs of between one and 40 megawatts that could easily be converted to biomass. By 1994, the BMFT wants to acquire four to six pilot power plants, each with an output between one and 40 megawatts, in which *Miscanthus* would be burned as fuel.

Western power companies do not think much about the green fuel. In the energy market, renewable energy sources will be of no significance even in the mid-term, according to Fritz Peters of the Technical Union of Major Power Plant Operators in Essen. Exceptions confirm the rule however. *Miscanthus* has been well known in the Schwaben Power Supply (EVS) in Stuttgart since 1987. The growth potential of the reed has been tested in long-term experiments in small parcels of land. The results were sobering. To be sure, *Miscanthus* grew amazingly well in Swabian soil. The Stuttgart researchers achieved harvests of between 30 and 40 tons dry mass per hectare. However, the EVS Central Office in Stuttgart went on to say that "in order to be able to compete with conventional primary energy sources, the yield per hectare would have to be in excess of 70 tons." Moreover, *Miscanthus* would only pay if the present cost of imported coal were to double, and the costs for the plants were to sink drastically. Consequently, EVS has no specific plans to use *Miscanthus* or any other renewable fuel in any of its existing power plants.

The final decision as to the future of *Miscanthus sinensis* will possibly be made at another level. 163 East German communes have filed a complaint against the monopoly of the three major energy suppliers RWE in Essen, PreussenElektra in Hannover, and Bayernwerk in Munich. Should the communes win the case, a more decentralized power supply system can be expected in the new States. "We hope so," says Felix Zimmermann, the business director in the Cologne Association of Communal Enterprises. However, he does not expect a decision to be handed down before next summer.

To be sure, renewable fuels do not have a chance in the old Federal States in the West. BMFT expert Roemer-Maehler puts it this way: "The EVU monopolies in the West are not about to be broken up."

### **Berlin Promotes Block-Type Thermal Power Stations**

92MI0218 Bonn DIE WELT in German 14 Jan 92 p 19

[Article by Richard Scheibel: "Heat, Light and Clean Air for the Capital—Funding for Block-Type Thermal Power Stations in Berlin"]

[Text] Berlin's Senate for Environmental Affairs is investing a total of 20 million German marks in a program to accelerate the construction of block-type thermal power stations in the city. These small power stations will provide industry, business, public bodies, and large apartment blocks with heat and electricity in an environment-friendly way.

By funding this recently launched project, Berlin's environmental authority is abandoning its previous opposition to block-type thermal power stations (BHKW's). According to Environment Senator Volker Hassemer, it is primarily the improved exhaust technology that has now rendered decentralized power supplies of this type viable in a number of districts.

BHKW's are small power stations powered by an internal combustion engine or a gas turbine. The power released by the unit is converted into electricity by a generator. The heat that arises as a by-product of oil or gas combustion is fed into heating plants or used to supply hot water. The pollutant content of the exhaust gas is reduced by the engine design or by catalytic converters.

It is felt in Berlin that this concept can be used to supply cheap, environment-friendly power in numerous locations, particular benefits being the considerable fuel savings compared with conventional supply systems, a design that tailors the plant to actual needs, and a substantial reduction in exhaust pollutants.

A total of 14 BHKW's are being funded, with construction scheduled for completion by 1993. The funds are drawn from an EC program that subsidizes up to 50 percent of investment costs.

The Berlin plants were selected for funding on the grounds of their particular suitability for decentralized power supplies. As the internal combustion engine can only produce electricity and heat simultaneously, the customer must also require both forms of power simultaneously; as a result, BHKW's cannot be used everywhere.

Hospitals are the classic example cited for effective decentralized power supplies. For this reason, one of the projects being funded is the new power plant at the Steglitz clinic, where a seven-megawatt block-type thermal power station can cover around 80 percent of the power requirements.

As this plant will both replace the old oil-fired boiler and provide the emergency electricity supply, the planners expect fuel savings of around 41 percent, equivalent to around 620,000 liters of oil per annum.

Current estimates suggest that around 10 percent of the city's power requirements can be met by these small power stations; the environmental authority sees the greatest demand in the eastern part of the city.

This district already has numerous small-scale heating grids, though their heating plants are without exception in a very rundown state. Here, the transition to BHKW technology could bring not only the much-needed renovations, but also substantial economic benefits arising out of extra electricity generation.

Overall, the environmental authority expects the small power stations to have a substantial effect on pollutant emissions from power plants. From the example of the hospital-based BHKW, experts predict a 50 percent reduction in CO<sub>2</sub> emissions compared with the previous heating and electricity generating system, along with an 88 percent reduction for SO<sub>2</sub> and 15 percent for NO<sub>x</sub> emissions.

### **Eology Projects Offset Decline in Lignite Mining**

92MI0220 Bonn DIE WELT in German 15 Jan 92 p 14

[Article by Ute Semkat: Ecological Trends for Eastern Brown Coal"]

[Text] While a rotary bucket excavator eats into the coal seam to the right of the narrow road, a monoculture of thin poplars is creating a new landscape on a recultivated waste tip to the left. This "forest" ends at the coal briquette factory, which at this time of year is concealed by a thick pall of fog—"nothing but water vapor." I was assured. The open cast mine and the village of Amsdorf are typical of central Germany's brown coal landscape. The intensive extraction of an annual 100 million tonnes of brown coal during the GDR era, without any regard for ecological considerations, has left ugly scars in the countryside. Even more than the change in environmental awareness, the social market economy is now imposing a facelift on this region, which once provided 57,000 jobs in the coal industry. The Central German Brown Coal Works AG (Mibrag) halved its extraction rate to 50.7 million tonnes in 1991, a figure that will fall further, reaching 25 to 40 million by the end of the century. However, the future of the central German brown coal industry at this level does seem assured. Brown coal generates greater heat and has a lower water content than other types of coal, and, despite its sulphur content, will continue to be used to generate electricity and heat. Veba Power Works Ruhr AG, which will be using brown coal to fire its new power station at chemical company Buna AG's factory, has guaranteed Mibrag an annual order for up to 6 million tonnes of coal. Another important factor is the Amsdorf heating power station's dust extraction plant, partially financed by the federal government, which has reduced dust incidence to prescribed levels since July 1991.

The region's environmental health is being enhanced by the closure of obsolete briquette factories and power stations. Of 21 open cast mines currently in operation, only nine will still be open by the end of 1992, and three at the most will remain by the year 2000; this will be a decade of continual reclamation and recultivation of the abandoned mine sites, for which Mibrag will also present its strategy at the First Leipzig Environment Trade Fair (Terratec) in March. Employees, numbering 5,300, made redundant by the company are involved in job creation schemes that are almost entirely devoted to transforming depleted open cast mines into green landscapes. Whereas during the GDR era the brown coal industry's obligation to restore derelict mine sites went no further than planning the tips, the intention now is to lay out business parks and recreation areas, thus also creating new jobs. Projects of this kind receive funding from both the federal and land governments. However, it is not every miner who finds new employment opportunities, and many young people are already leaving the region.

Refuse dumps and waste disposal plants will also be set up on disused mining sites, planning and preparation of which are in the hands of one of Mibrag's 20 subsidiaries, the Environment and Disposal Company. This company was previously involved in the Mecklenburg "western waste dump" scheme at S-hoenberg. Alongside planning procedures, preparations are in hand for construction a giant dump south of Leipzig with a capacity of 20 million cubic meters of domestic waste.

#### **Karlsruhe Nuclear Fuel Processing Plant To Close**

92MI0248A Bonn *TECHNOLOGIE-NACHRICHTEN*  
MANAGEMENT-INFORMATIONEN in German  
17 Jan 92 pp 11-12

[Text] On 10 December 1991, the federal government, represented by the Federal Ministry of Research and Technology, the land of Baden-Wuerttemberg, represented by its Ministry of the Economy, Small- and Medium-Sized Enterprises, and Technology, the Karlsruhe Nuclear Research Center GmbH (KfK), the Karlsruhe Reprocessing Plant Company mbH (WAK GmbH), and the German Nuclear Fuel Reprocessing Company (DWK) signed a general agreement on the decommissioning and final closure of the Karlsruhe Reprocessing Plant Company (WAK). Total costs are currently estimated at around 1.9 billion German marks [DM] over the total 12-year term for the project. DM1 billion of which are being contributed by the German electricity generating corporations via the DWK. The actual work of planning, decommissioning, and disposal will be carried out mainly by the plant's present operator, WAK GmbH, on behalf of KfK, which is responsible, as owner of the plant, to the federal and land governments for the project's implementation.

WAK was established over the period 1964 to 1970 on behalf of the federal government by the then Nuclear Research Company (now KfK GmbH) at an overall cost covering the plant itself and subsequent extensions, of

around DM200 million. The plant was subsequently operated by the Nuclear Fuel Reprocessing Company mbH (GWK), which was set up by the Bayer, Hoechst, Gelsenberg, and Nukem companies, who had their costs refunded by the federal government. In 1981 WAK GmbH, a DWK subsidiary, succeeded the GWK; from 1982 WAK was funded by industry via the DWK, which itself was founded in 1977 by 12 German electricity generating corporations.

Since 1971, WAK has reprocessed around 208 tonnes of nuclear fuel using the Purex process, in which nitric acid is used to leach the fuel out of the fuel rods after they have been cut up, and the valuable substances, uranium and plutonium, are then extracted using an organic solvent and recovered. The radioactive fission products then remain as a concentrated liquid solution. An annual throughput of 35 tonnes was planned for the plant, which was also successfully used as a test-bed for KfK's technical developments. Following DWK's cancellation of the operating agreement. The reprocessing plant ceased to function on 31 December 1990.

An integral part of the present agreement on the plant's decommissioning is provision for disposal of the radioactive waste, in particular the highly active liquid waste stored in WAK. This is to be transported to the PAMELA vitrification plant in Dessel, Belgium, where it will be encased in glass for ultimate storage, using an established process. Disposal by this process requires the building of suitable on-site delivery stations for highly active waste both at WAK and at the PAMELA plant, and the availability of suitable transport containers.

The decommissioning of WAK's facilities, including the planning and approval stages, the decontamination of facilities and buildings, the dismantling of plant, and, finally, the conventional demolition of the buildings, will proceed simultaneously with waste disposal. Processes that have successfully proved their validity in nuclear technology are used in decontamination and generally reduce the dose rate for processing plants to such an extent that dismantling can be carried out through direct contact. Where this is not possible, remote-control equipment is used for dismantling as in the decontamination of two earlier reprocessing plants, Eurochem in Belgium and Nuclear Fuel Services in the United States. Each separate partial stage in the entire process requires approval in accordance with the law governing nuclear facilities. Present estimates are that the project to create a green field site will take around 12 years.

#### **Government Sets Out Energy Policy**

##### **Overall Strategy Report Issued**

92MI0247A Bonn *TECHNOLOGIE-NACHRICHTEN*  
MANAGEMENT-INFORMATIONEN in German  
17 Jan 92 pp 3-4

[Text] The coherent introduction of market economy controls is of the utmost importance in ensuring the rapid integration of the new federal laender into the

national energy management scene. This emerges from the report on the federal government's overall energy strategy entitled, "Energy Policy for the United Germany," according to which the new laender must abandon their total dependence on brown coal in favor of energy supplies distributed over a variety of sources. This will require improved legal investment security and a greater degree of privatization. The reclamation of polluted sites is a particular priority.

Regarding climate protection, the federal government states its main objective as reducing energy-linked carbon dioxide emissions, pointing to the need for an overall strategy on protecting the atmosphere, to be agreed across the broadest possible international base. Energy savings must take priority. To achieve the intended reduction in carbon dioxide by the year 2005, it is crucial to increase energy savings in buildings. Coal policy must take account of structural changes brought about by the EC's energy and subsidy policies, German unification, and the political transformation in the East. German hard and brown coal will still contribute to ensuring Germany's future energy supplies, though in smaller quantities than previously.

The federal government report "The Federal Government Overall Energy Strategy—Energy Policy for the United Germany" is published as Bundestag document number 12/1799, and is available from the publishers, Verlag Dr. Hans Heger, P.O. Box 20 1363, Herderstrasse 56 5300 Bonn 2; Tel. 0228 363551; fax 0228 361275.

#### Long-Distance Heating Promoted

92MI0247B Bonn TECHNOLOGIE-NACHRICHTEN  
MANAGEMENT-INFORMATIONEN in German  
17 Jan 92 pp 4-5

[Excerpts] A total of 300 million German marks [DM] are being provided for 1992 under the "Long-Distance Heating Renovation Program," jointly conceived and financed by the federal government, the new laender, and Berlin, to renovate long-distance heat supply systems; this sum is expected to attract investments in excess of DM1 billion. The program is another element in the joint "Boost for the East" campaign and is intended to bring about the urgently needed renovation of long-distance heating. Moelleman, the minister responsible, sees the scheme, to be launched in 1992, as the start of a multi-year joint program.

The federal government has always stressed the importance of long-distance heating, and particularly of combined power and heat generation, for energy and environment policy reasons, its funding over many years in the older laender being evidence of its position in this respect. Long-distance heating from combined power and heat generation can also contribute significantly towards reducing CO<sub>2</sub> emissions, especially in the new laender.

The GDR's centralized planning of housing construction and its energy policy aim of self-sufficiency, have given

long-distance heating far greater importance in the new laender than in the older ones: 24 percent of homes in the east are served by long-distance heating, 80 percent of which is produced from brown coal, though without adequate environmental safeguards. Both the production and distribution systems are seriously run-down, and measurement and control systems are lacking. In the past, long-distance heating received around DM3 billion per year, thus relying heavily on energy subsidies. Abolition of subsidies has meant that long-distance heating prices are now significantly higher than those in the older laender.

The present state of long-distance heating in the accession area calls for renovation and updating to the latest state of the art so as to give the system an economically viable, environment-compatible basis; state funding is needed to create a competitive long-distance heating system. The program will therefore support the maintenance of the long-distance heating infrastructure, which is worth renovating with a view to promoting rational power consumption and enhancing the environment. [passage omitted]

The program's resources will be used to renovate typical long-distance heating facilities, focusing on combined power and heat generation and domestic supply stations, including the associated measurement and control systems. The funding also covers renovation of long-distance heating distribution systems. [passage omitted]

#### Refuse Incineration Success in Lowering Pollutants Noted

92MI0226A Bonn DIE WELT in German 22 Jan 92  
p 19

[Article by Michael Simm: "Limits Can Now Be Complied With—Technology Counters Dioxins in Refuse Incineration"]

[Text] Refuse incineration technology has advanced rapidly in the last 12 years. At several of the refuse incineration plants currently in operation, the concentration of pollutants released in flue gases is already below the target levels laid down for 1995 in the 17th Federal Antipollution Order, announced Professor Hubert Vogg of the Karlsruhe Nuclear Research Center (KfK) at the scientific press conference held yesterday in Bonn.

He said that success had been achieved primarily in the reduction of hydrochloric gases, dust, cadmium, and mercury, and also with dioxins and their relatives, furanes. Improved processes can reduce emissions to at least one-fortieth and, in the case of dioxin, to as little as a four-hundredths of the 1980 values.

As regards dioxin, the researchers made new findings about the origin of the Seveso poison. They found that dioxins and furanes are formed in the flue gas cooling zones at temperatures between 250° and 400°C in the presence of incompletely combusted carbon. This led to the recommendation that incineration be carried out at a

lower rate of flow and at a higher temperature, a recommendation that "the industry had now fully implemented," said Vogg.

Even two years ago the Federal Antipollution Order was criticized for setting utopian limits that the state-of-the-art at the time could not achieve. It stipulates that, as from 1995, one cubic meter of flue gas may contain not more than one ten-billionth of a gram of dioxin (or, more precisely, dioxin toxicity equivalents). One in 10 of western Germany's 50 refuse incineration plants are now below this target, which is the strictest in the world.

On average, these plants each handle 200,000 tons of household refuse every year. In the new laender, however, there is only one household refuse incineration plant, and the massive amounts of waste are dumped instead. A state-of-the-art refuse incineration plant requires an 80- to 100-million German marks [DM] investment.

Household waste incineration causes problems primarily because the composition of the waste is largely unknown. "Household waste is unpredictable. It is different from special waste, where the exact composition is generally known and incineration can be optimized accordingly," explained Manfred Popp, Chairman of the KfK Board.

But it is not only the flue gases, but also the solid residues that constitute a heavy burden on the environment. Clinker, salts and above all, filter dust retain a large proportion of the pollutants from household waste. They can be reduced by subsequent chemical and physical treatment, known as the 3R process (from [the German for] flue gas purification with residue disposal), which was developed in Karlsruhe.

Despite their successes in recent years, the Karlsruhe scientists entertain no doubts about the order of priorities: "avoidance—recycling—incineration." In this connection, Popp criticized the current lack of recycling technology comparable with the sophisticated technology used to produce all consumer articles. Popp called on industry to show greater commitment in this sector. "It is a sign of inadequacy if 70 percent of all waste goes untreated today."

The chairman also saw this as an opportunity for the KfK, which wants to be more involved in environmental research and engineering in the future. The basic financing for this, Germany's largest research establishment, had been significantly reduced for the current year.

#### **Germany Offers CIS Nuclear Decommissioning Assistance**

92MI0237A Bonn DIE WELT in German 29 Jan 92  
p 4

[Text] Federal Environment Minister Toepfer has referred to acute environmental safety problems arising in

central and eastern European countries and in the European regions of the former Soviet Union. "The hazard potential, primarily of nuclear power plants of Soviet design, can affect us very quickly," said Minister Toepfer in an interview with DIE WELT. According to the minister, of the over 60 nuclear power plants, some with inadequate safety standards, only six of them old and six to nine of them new graphite-moderated Chernobyl-type reactors were in operation, some in St. Petersburg and Lithuania.

The German Government is working with France, the International Atomic Energy Agency in Vienna, and the EC on an international agenda. "In the east, safety hazards are compounded by major energy problems due to inadequate conventional power supplies. The lack of shut-down strategies is a source of concern. Safe decommissioning requires a large amount of know-how that our colleagues in Russia and the Ukraine do not have," said Minister Toepfer. "In practice, a Chernobyl-type reactor can only be shut down safely if a new nuclear power station is built right next to it." He attributed "absolute priority" to the search for solutions to this problem. Nuclear weapons in the former Soviet Union also required dismantling according to environment-friendly disposal criteria, because plutonium was a by-product of the process. German know-how could be brought in here, as the federal government had not met the Social Democratic Party's demands for an "end to the plutonium industry."

Minister Toepfer said, "it is all to the good that Germany has developed a technology, known as the MOX [mixed oxide fuel] process, for reprocessing plutonium into fuel rods for nuclear power stations. We have done pioneering work in this field. Consideration must be given to using this process to dismantle nuclear weapons. I regard this as a crucial factor in our joint work on solving these problems."

Speaking about the objectives and responsibilities of environmental policy in the uniting country, Minister Toepfer said, "Germany must now show that an ecologically responsible social market economy can turn a region incredibly exploited and heavily polluted in every way by socialism back into a place worth living in." This would significantly contribute to meeting eastern Europeans' demands for efficient reclamation methods to be applied.

#### **Environment Minister Urges Help to Third World on CFC Ban**

AU2502135792 Munich SUEDEUTSCHE ZEITUNG  
in German 25 Feb 92 p 27

[Report by "OLD": "Toepfer Plans To Help Developing Countries Give Up CFCs"]

[Text] Berlin—The Third World countries need specific help from industrial nations to develop an industrial production that does not involve the use of chlorofluorocarbons [CFC's] and halons. At an international conference in Berlin on alternatives to CFCs and halons,

which destroy the environment, Federal Environment Minister Klaus Toepfer stressed that this can only be achieved if substitutes and alternative technologies are made available to the developing countries.

Toepfer said that technological and financial aid for the developing countries is therefore as important as the early discontinuation of CFC production in Germany itself. For this purpose, the Federal Republic is taking part in a multilateral fund of the so-called Montreal agreement on the reduction of dangerous CFC's destroying the ozone layer by contributing more than \$20 million.

#### Loss of Confidence

Toepfer believes that other countries will also sign the agreement before long. He says that delays in its ratification will lead to a loss of confidence particularly among the Third World countries. In Germany, the production of halons, which are used in fire extinguishers, has been prohibited since early this year. Nonetheless, this substance is still used in fire extinguishers for airplanes. In this case, the halons are not produced in Germany.

According to Toepfer, the Federal Republic has played a pioneer role in fighting the production of CFC's. As a result, German industry has increased its efforts to work intensively on the research and development of substitutes that do not harm the ozone layer. The environment minister said that the recent alarming scientific findings on the destruction of the ozone layer in the northern hemisphere have shown once again how necessary it is to give up CFCs without delay.

Meanwhile, the possibilities to use substitutes in all ranges of application have been considerably advanced. That is why work is now focusing on the discontinuation of the production and application of CFCs in Germany by 1993, instead of 1995 as originally planned, said Toepfer. Exceptions can only be permitted in clearly limited cases and only in cases where these substances are applied in closed systems. The environment minister stressed that the European Community will presumably back the Federal Republic's step.

#### Problems Reported

Toepfer admitted that there are problems related to the disposal of products containing CFC's, such as refrigerators, insulating materials, and passenger car steering wheels. He said that among other things, procedures permitting the burning or fission of ozone-destroying substances are not progressing in the federal laender.

At the Berlin congress, in which 400 experts from all over the world are taking part, the Greenpeace environmental protection organization called for a worldwide halt to production of CFC's to protect the atmosphere of the Earth.

## NORWAY

### Report Calls for Reevaluation of National Emissions Goals

92WN0297A Oslo AFTENPOSTEN in Norwegian  
6 Feb 92 p 10

[Article by Ole Mathismoen: "Too Expensive for Norway To Take the Lead in the Environmental Struggle"]

[Text] The bill is becoming too large. The politicians ought to reevaluate both the national goals for CO<sub>2</sub> stabilization and the declaration Norway signed about a 30-percent cut in nitrogen oxide emissions before 1998.

This is one of the conclusions in the report of the government-appointed Environmental Impact Fee Committee which was submitted yesterday. The committee, which itself claims to be strictly objective economically, has thereby thrown a bombshell into the environmental policy debate. From an objective viewpoint, the committee concludes that the use of economic tools such as environmental impact fees in order to move consumption and production into an environmentally amicable direction is most cost-effective and just. The committee also concludes that a CO<sub>2</sub> fee must be imposed equally per kilo of emissions, irrespective of type of fuel and range of use. This recommendation is in direct opposition to what the Storting approved on Tuesday, when the Tjeldbergodden Methanol Factory was exempted from such fees for all future time.

The committee is of the view that use of environmental impact fees must be seen as a link in a gradual change-over of the tax and fee system from direct taxes to increased use of indirect taxes; on consumption, production, etc. Environmental impact fees will be such an indirect tax and accordingly, as time goes by, will account for a larger part of the country's revenues. Other taxes and fees must be reduced correspondingly as environmental fees increase. The committee strongly advises against the earmarking of environmental fees for specific purposes.

The Environmental Impact Fee Committee consists of ten economists from various ministries and institutes and from the University of Oslo. It has been led by Thorvald Moe, a department chief in the Ministry of Finance. And it is without doubt the recommendations regarding a reevaluation of the goals for carbon dioxide and nitrogen oxide emissions that will arouse the most debate.

A lot of space is used to explain why Norway must now be cautious about going further than other countries in introduction of environmental fees. Among other things, because Norway has many energy-intensive industries and because Norway gets a great deal of its energy from waterpower, environmental fees for carbon dioxide emissions that must be introduced here in order to achieve stabilization of the emissions by the year 2000

are more than twice as high as is necessary in other countries in Europe. In the committee's view, because realization of this objective will come into conflict with other high-priority political goals, such as increased employment and stable economic growth, it is recommended that the politicians reassess the objective. The committee believes that we can lose between 20,000 and 30,000 working places by maintaining the carbon dioxide goal.

The committee ascertains that, if it is necessary to have dramatically higher fees in Norway than for our trading partners in order to reach the environmental objectives, a trade drain and lost competitive ability will be the result. Norway will quite simply be subjected to high, unnecessary costs by taking the lead and being the frontrunner country in the introduction of harsh remedies. The committee also points out that Norway will lose earnings from oil extraction as and when an effective climate agreement is adopted. Such an agreement will entail reduced oil prices and losses for the state treasury. The committee strongly recommends that Norway continue to fight for cost-effective agreements, where cuts in emissions are made where one gets the most environment for every krone.

Committee chairman Moe states it as follows: "This is not hostile to the environment. Quite to the contrary. Without a cost-effective climate agreement the danger is great that the bill will be so high that the necessary global reductions will not be reached," he said. Moe meanwhile sharply corrected all the people in industry who maintain that today's environmental fees are in any way to blame for industry's problems: "This is a strong exaggeration. Industry's problems are due to a downturn in economic conditions," he said.

#### Other Countries

The committee's proposal for a strategy for carbon dioxide emissions is as follows:

- That Norway meet obligations through reductions in Norway and through Norwegian-financed efforts in other countries.
- That Norway implement counterefforts, primarily fees, that are at least as high as in other European countries.
- That fees be applied to all emissions equally, based on emission volume and the cost-effectiveness.

Such a cautious strategy, which is premised on Norway not taking the lead but entering into climate agreements based on cost-effectiveness, will have the result that Norway's emissions of both carbon dioxide and nitrogen oxides will grow in the years to come, and that the stabilization goal cannot be reached, the committee asserts.

#### Politics of Lowering CO<sub>2</sub> Emissions Examined

92WN0303A Oslo AFTENPOSTEN in Norwegian  
8 Feb 92 p 3

[Article by Aslak Bonde and Ole Mathismoen: "When Environmental Protection Is Job Number Two"]

[Text] Politicians are like most of us. They are unable to deal with more than one problem at a time. Two years ago it was the environment, now it is employment. But, according to a leading author of the white papers in both Norway and Sweden, that is no reason to reproach the politicians.

On Tuesday the Storting approved bringing gas from the Heidrun field ashore and building a methanol factory on Tjeldbergodden. This will increase Norway's CO<sub>2</sub> emissions by 1.5 percent. On Wednesday the Environmental Tax Committee concluded that stabilizing the CO<sub>2</sub> emissions would be too expensive. The conclusion suited most Storting members who have long since decided to "wait a little" before raising environmental taxes or imposing new ones. Although they will not admit it they laid much of the groundwork this week for abandoning the goal they themselves agreed on two and a half years ago. They have boasted about this goal to the entire world and some of them have criticized the United States for being reluctant to go along with it.

It is extremely likely that the Environmental Tax Committee is right in saying that many firms cannot shoulder new high taxes when their competitors in other countries do not have similar taxes. The expansion of the Heidrun field on Haltenbanken was approved last year and the gas that is brought up from the field will produce some CO<sub>2</sub> emission regardless of what is done with it.

#### Environmental High

The problem is that the politicians made rash promises in 1989. It is easy to forget this but a great many of today's Storting representatives were elected on party platforms and campaign promises to not only stabilize CO<sub>2</sub> emissions but to reduce them by as much as 50 percent no matter how difficult this might be.

Environmental policy is perhaps the most illustrative example of how easy it is to set political goals and how hard it is to implement them. Environmental goals were also set in the 1970's. The difference is that hardly anyone reacted then when the goals were ignored in favor of industrial expansion and increased consumption.

Even a man like Karl Glad used strong words after the Brundtland Commission report was released and Norway's leaders were experiencing an environmental high: In July 1990 Glad, who was then director of Aker and is current chief of the NHO [Central Organization of Commerce and Industry], said: "Industrial activity that represents a threat to the environment will not be

allowed to exist in the society we are now moving toward, regardless of the economic results and regardless of jobs. This is a reality."

Now the NHO is attacking both the environmental goals and the means for achieving them. By citing the loss of jobs the employers are joining forces with the union movement. Together they are hurling themselves at the surprised politicians who concede that this is not a good situation.

### Example

The reason why the politicians made such extravagant promises in 1989 was that they all thought it was necessary for Norway to set an example for other countries in international environmental talks. They were well aware that it would cost a lot to implement the goals but they all emphasized that we had to pay to save the environment. Carl I. Hagen of the Progress Party was the only one who said it might be too expensive: "I suspect you of trying to score cheap points for the campaign," he said during the debate in June 1989.

Politicians who go back on campaign promises are hardly a new phenomenon. But the similarities between "yesterday's environmental debate" and "today's employment debate" are worth noting. Everyone in the Storting now says the fight against unemployment is more important than anything else. With the exception of the SV [Socialist Left] representatives everyone also says jobs are more important than the environment—even though they prefer to say so in private. They were extremely anxious to be quoted when they said the exact opposite in the last Storting election campaign. The fight to save the environment has become job number two.

The question is whether the politicians will remain focused on jobs for a longer period of time than they were on the environment. Professor Johan P. Olsen, who was involved with the white papers in both Sweden in the 1980's and Norway in the 1970's, says recent research indicates that they will not.

"Research has shown that decisionmakers—both politicians and others—pay attention to one problem or goal at a time. The old economy-inspired idea that politicians always weigh all considerations against each other and then make rational decisions no longer holds true. In other words politicians are like the rest of us mortals. They always try to solve the problem that is most urgent," Olsen said.

But, critics ask, do they really solve problems by giving them their undivided attention for a certain period of time? Have they done something for the environment?

"A double standard is better than none at all," said Dag Hareide of the Nature Conservation League, while at the same time calling the politicians' departure from the CO<sub>2</sub> goal scandalous. Others stress that the politicians are doing an important job simply by setting goals.

Various ministries, agencies, and pressure groups can then use the goals to push for implementation of their policies.

Labor researcher Fredrik Engelstad with the Institute for Social Research does not make great demands on the politicians: "If the current preoccupation with employment leads to an admission in the Storting that politicians cannot create jobs, it will be a good start." Engelstad says employment policy per se has never produced a large number of new jobs. It is external factors like mental attitude, training, and economic necessity that create new jobs, in his view.

In other words he expects less from the politicians than the environmentalists did. One of the reasons may be that employment has been a paramount goal for politicians.

Another possible reason is that the arguments for environmental policy are fundamentally different from those for employment policy. It was not for the sake of short-term political gains that the Storting agreed to the ambitious environmental goals two and a half years ago. They felt the matter was urgent. Compromises on the greenhouse effect are not possible. And it is important to remember that the researchers who told us about the environmental problems in 1989 have not changed their minds. On the contrary they feel there is even more reason now to do something drastic about global environmental problems.

### [Box, p 3]

"In the effort to achieve an international climate agreement our own measures must be so far in advance that we have a real chance to play an activist role." (Prime Minister Gro Harlem Brundtland in the Storting, 14 May 1989.)

"We must avoid bringing Norway so far out of line with other countries that it has an unreasonably adverse effect on Norwegian firms and jobs. We must build bridges between industrial and job considerations and environmental goals." (Brundtland to the Labor Party group, 5 February 1992.)

## UNITED KINGDOM

### Farmers' Government Grants in Jeopardy Over Water Pollution

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in English 22 Jan 92 p 4

[Text] Farmers should lose Government grants if they fail to prevent rivers, streams and fish from being contaminated by slurry and other waste, the National Rivers Authority said yesterday, writes David Brown, Agriculture Correspondent.

Up to 40 percent of farms in some catchment areas are a threat to drinking water quality, the authority claimed.

And while reported farm pollution incidents in England and Wales had more than doubled over the past 10 years, these represented only "a small proportion" of the true figure.

Between 1979 and 1990 incidents rose from 1,500 to more than 3,000—with farms now accounting for 11 per cent of all reported water pollution cases.

Individual, tailor-made farm pollution plans were needed to help tackle the problem, it said in a report which urged the end of uncontrolled muck spreading and other practices.

Every farmer would need to draw a map of his property, identifying the best places to spread slurry and denoting high risk pollution areas. Woods, ditches, drainage channels, streams and rivers would be clearly marked.

Farmers in high risk areas might have to make arrangements for surplus animal manure to be moved to other parts of the country.

If these voluntary plans, described as the centre-piece of a 27-point improvement strategy by the NRA, did not work within five years, new legislation would be needed to crack down on farmers to help the NRA meet stringent EC water quality standards.

"Intensive farms, such as those for pigs and poultry, are factories," said Dr Jan Pentreath NRA chief scientist. But while industry was spending billions of pounds dealing with its pollution, farmers had been slow to recognise they had a problem.

Modern intensive agriculture was to blame.

High-risk regions included Wales and the South West and parts of the north of England which had high livestock populations.

Welcoming the comprehensive report on the effects of farm pollution on rivers, streams and groundwater resources, the Ministry of Agriculture announced the setting up of a pilot study in which farmers in selected areas would be helped to prepare their own "environmentally friendly" farm waste disposal plans.

Mr. Gummer, Minister of Agriculture, said that the study would involve the NRA and farmers' organisations. Safe disposal of farm waste was as important as safe storage, he said.

Farmers had invested £120 million in new waste storage facilities in the first three years of a Government anti-pollution scheme which met 50 per cent of the costs, the Ministry said. This had so far cost the taxpayer £62 million. In addition, thousands of farmers received free guidance from ADAS, the Ministry's advisory service.

Farmers risk fines of up to £20,000 for water pollution offences. Out of 954 prosecutions by the NRA over the past two years, 404 involved farms.

The report, based on visits to 10,000 farms, identified problems from livestock slurry, liquor from stored silage and a wide range of pesticides, fertilisers and chemicals including sheep-dips.

Other key recommendations in the report include:

- A review of existing consents allowing farmers to discharge farm effluents into rivers.
- Research into more efficient cost-effective farm waste treatment plants.
- Better education for farmers on pollution risks. Officials criticised agricultural colleges for not concentrating more on environmental concerns while training farmers.
- More attention from the Ministry of Agriculture to Environmental Impact Assessment (EIA) for future farm policies. Even current EC Directives did not require this, it said, yet the impact on water of some intensive farms policies of the 1970s and 1980s was "severe."
- More farm checks by NRA experts.

The National Farmers Union welcomed the report and said it would help reduce pollution.

But it called for more research, involving itself, the NRA and the Ministry, to identify the true extent of the pollution problem.

"The report recognises that many incidents arose from past policies," a spokesman said.

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